RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 522-24
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 522-24
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23892
SEC 24 TWP 6S RGE 95W
Other Services

				Elevation
Permanent Datum	Ground Level	Elevation	5371'	K.B. 5395' D.F. --- G.L. 5371'
Log Measured From	Kelly Bushing	24 FT		
Drilling Measured From	Kelly Bushing			

Date	04-OCT-2019
Run Number	One
Depth Driller	8998 FT
Depth Logger	8935 FT
Bottom Logged Interval	8923 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	245° F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	01:50
Equipment Number	HD-0331
Location	Grand Junction, CO
Recorded By	J. Donnelly
Witnessed By	---

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	1127 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8956 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 from 5445 FT - 5467 FT
Log ran with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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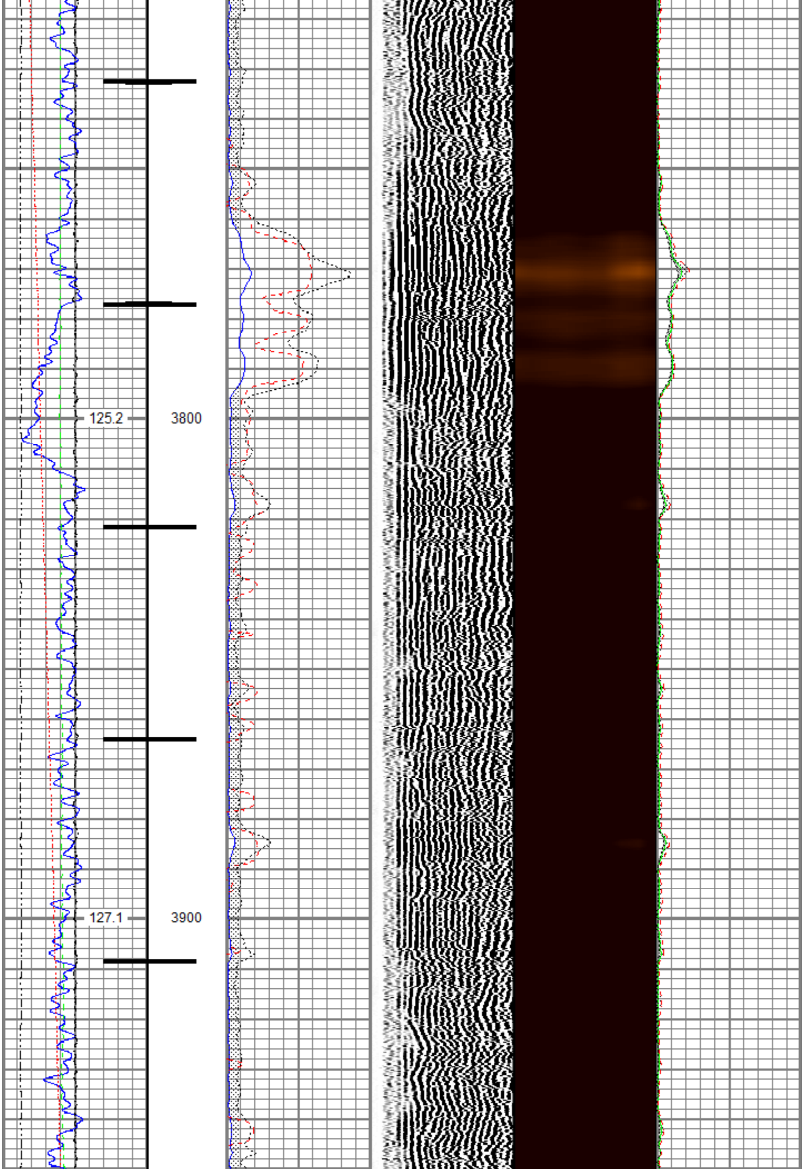
Main Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 522-24\processed_tep_federal pa 522-24_rbl_10-04-19.db
Dataset Pathname	Main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Sat Oct 05 22:17:05 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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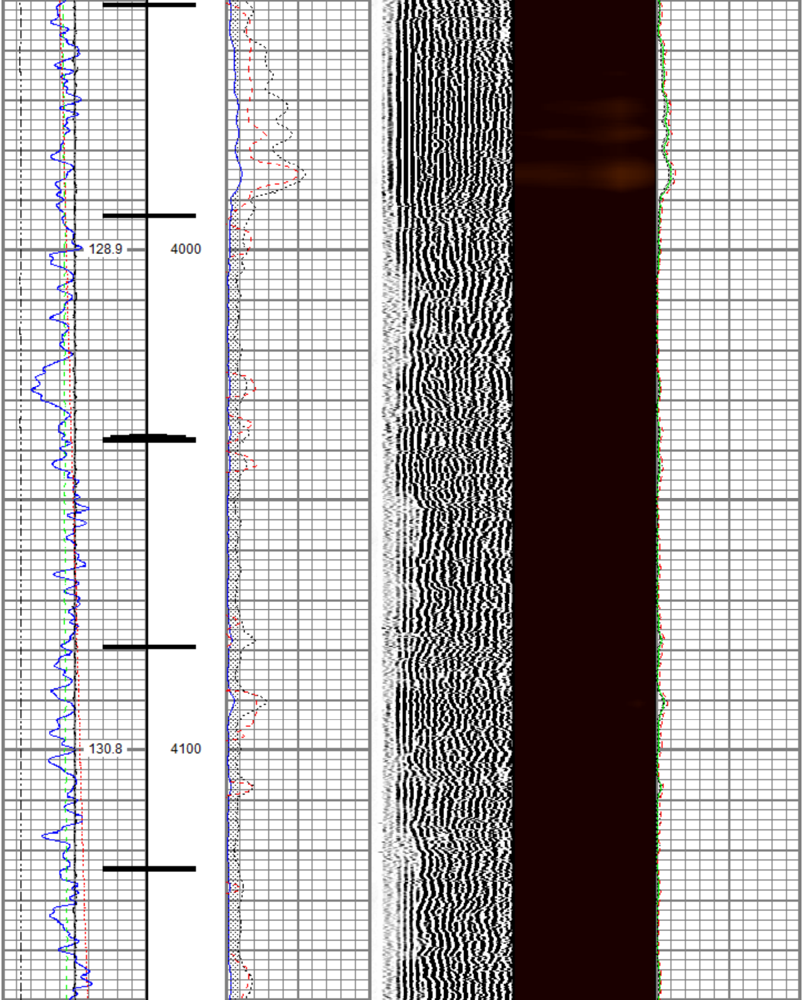
3800
127.1
3900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4000
130.8
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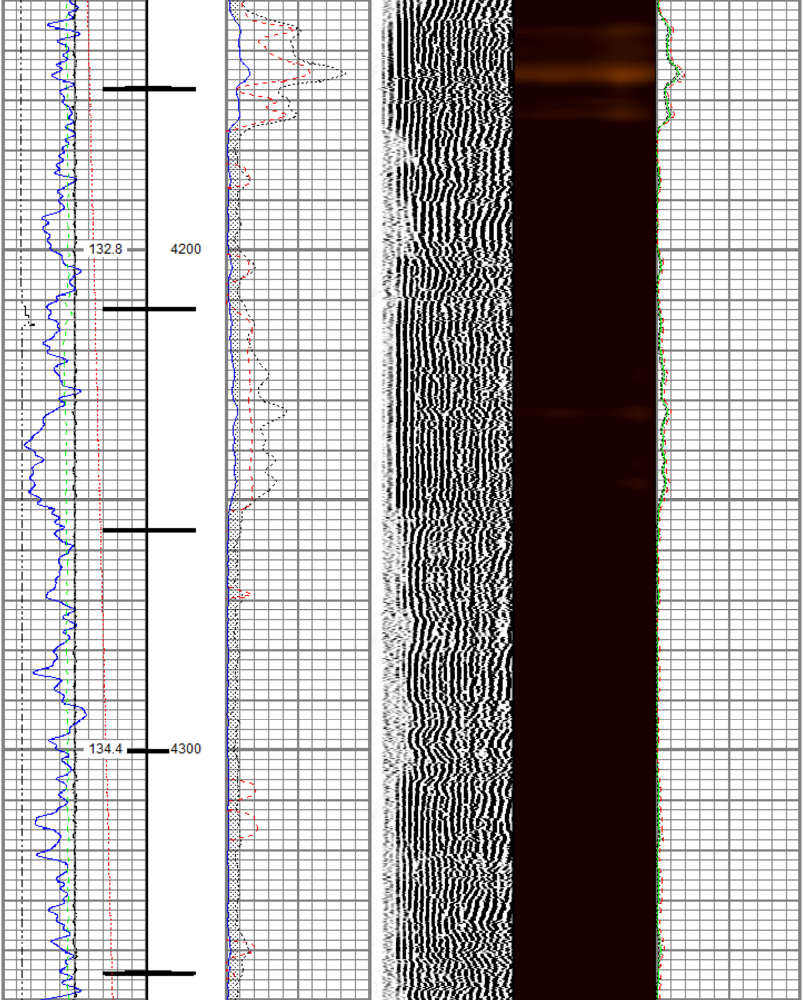
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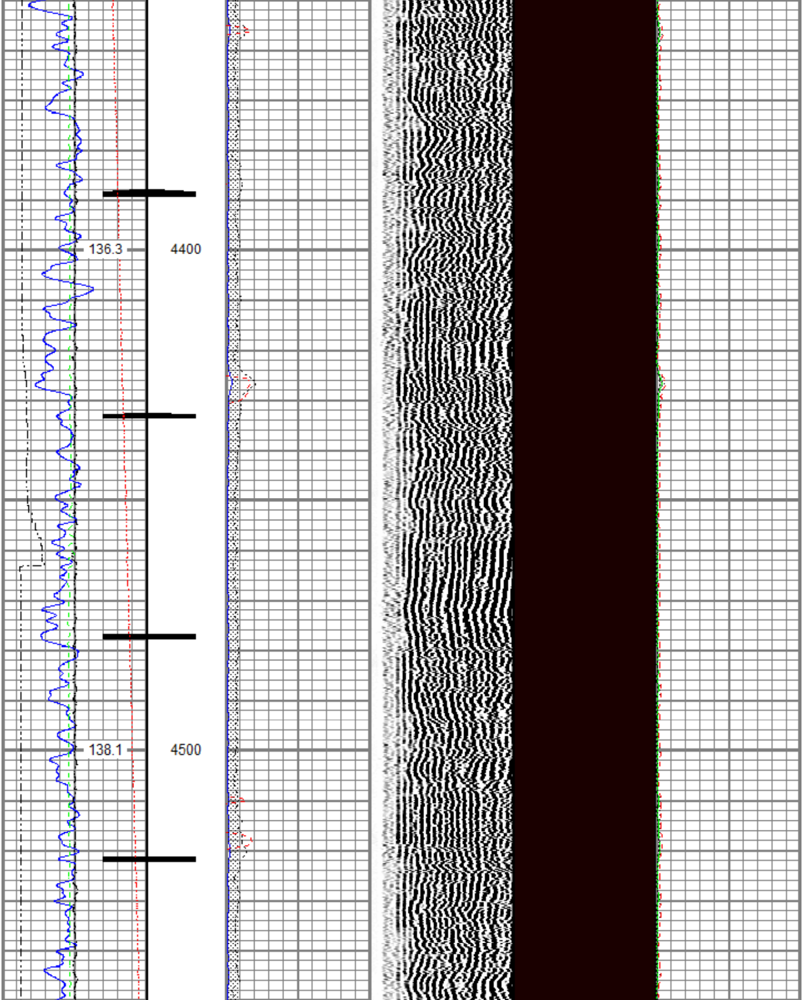
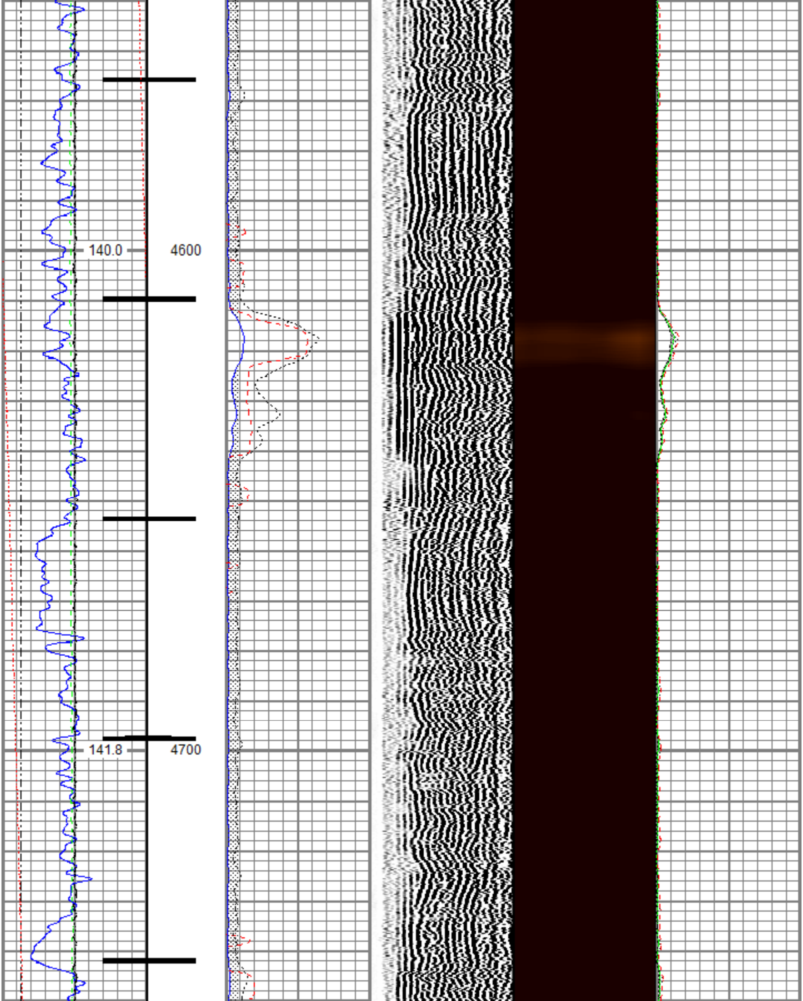
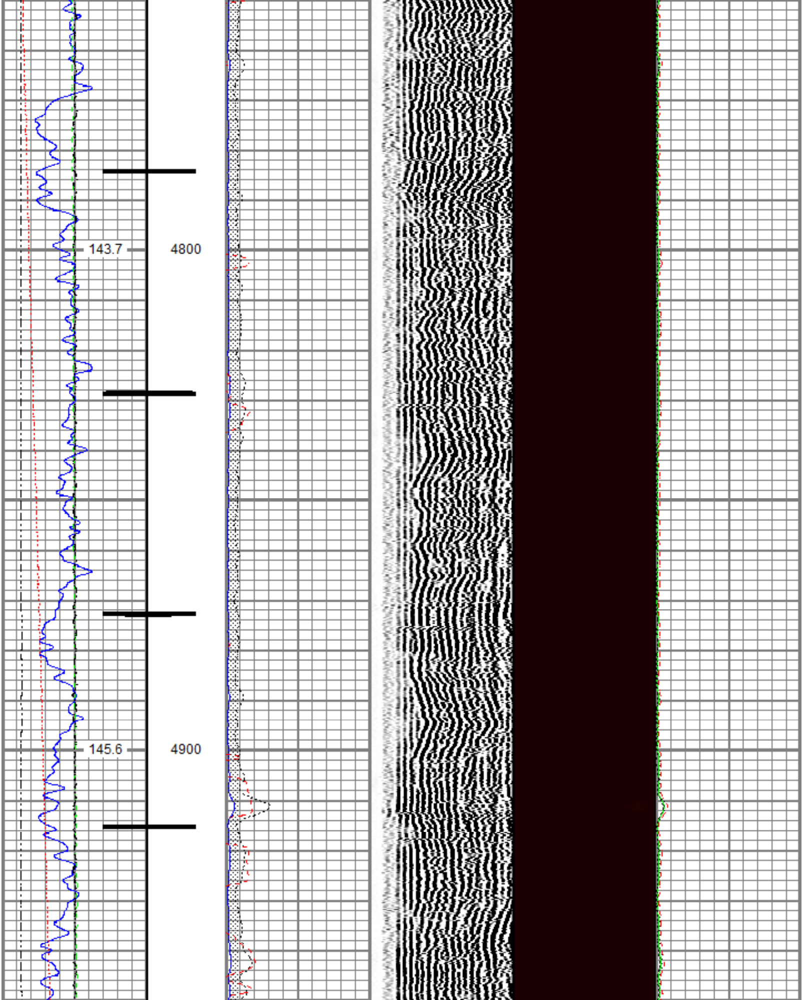
4200
134.4
4300


136.3
4400
138.1
4500


140.0
4600
141.8
4700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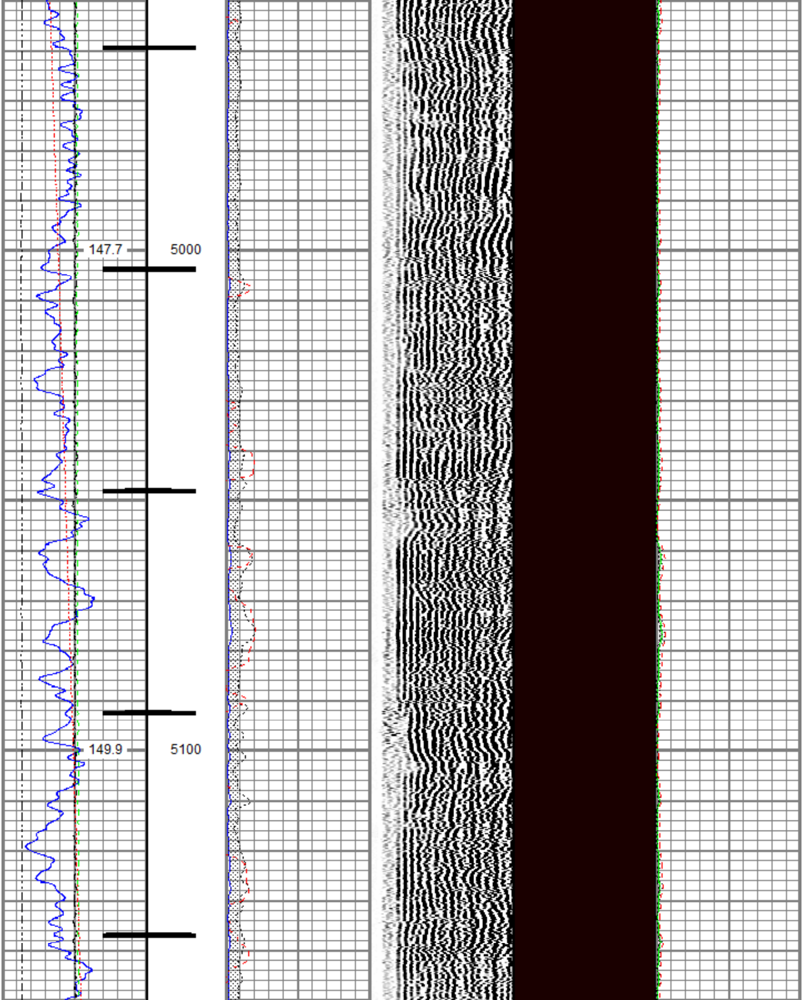
4800
145.6
4900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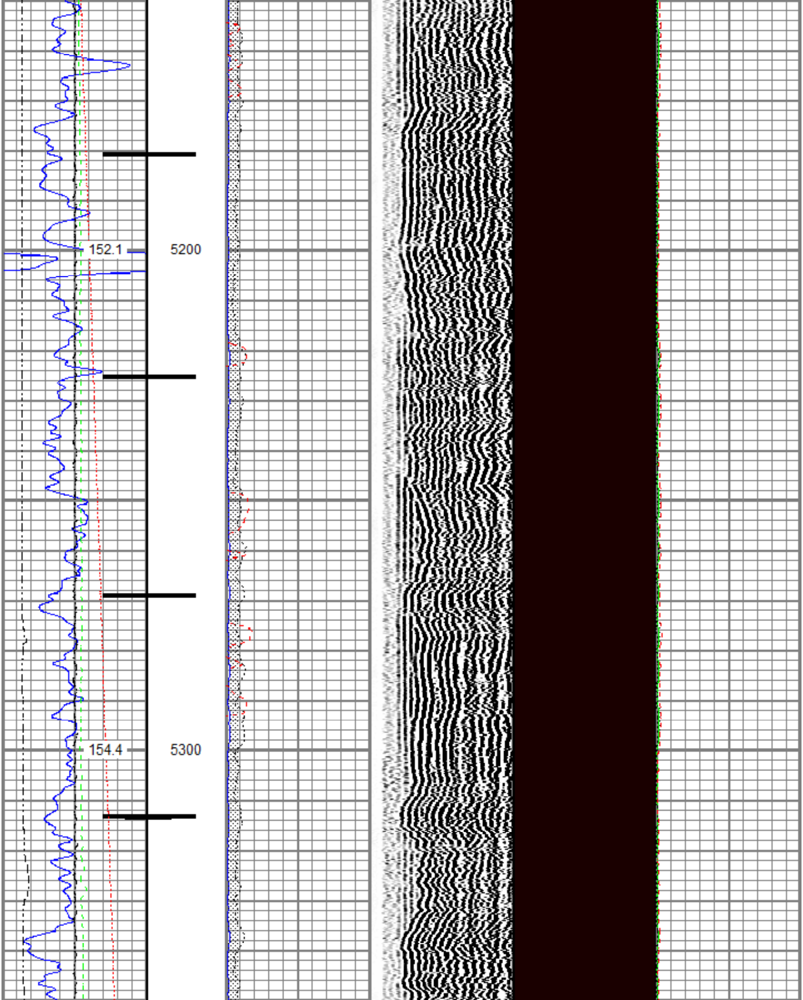
5000
149.9
5100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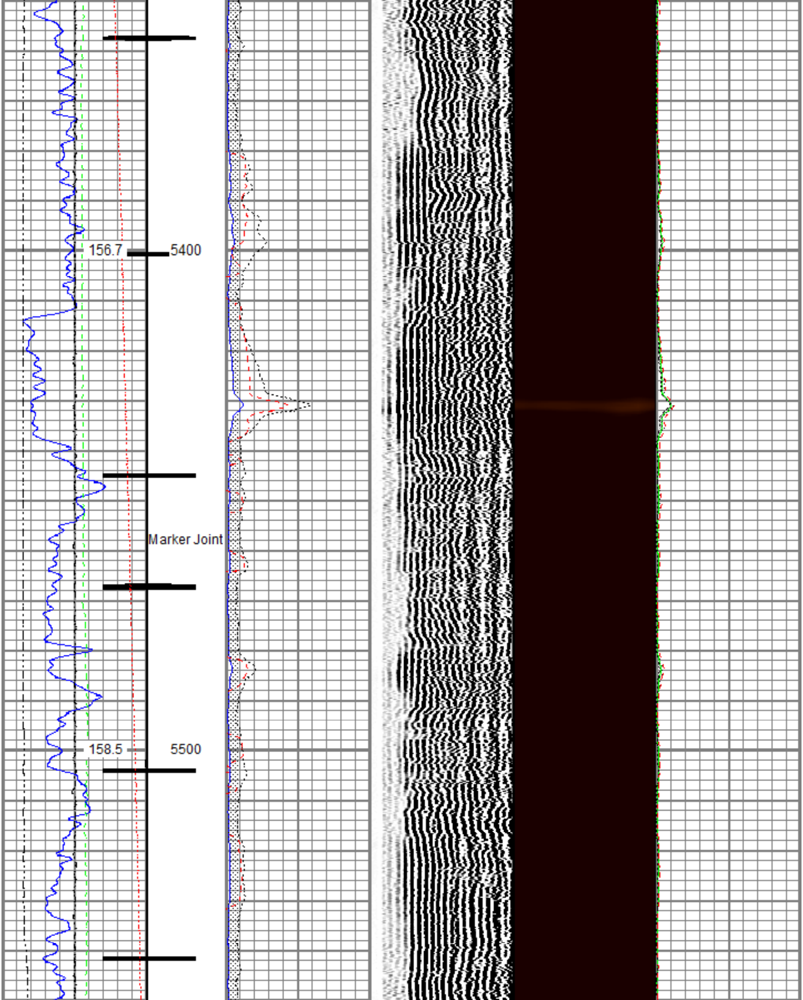
5200
154.4
5300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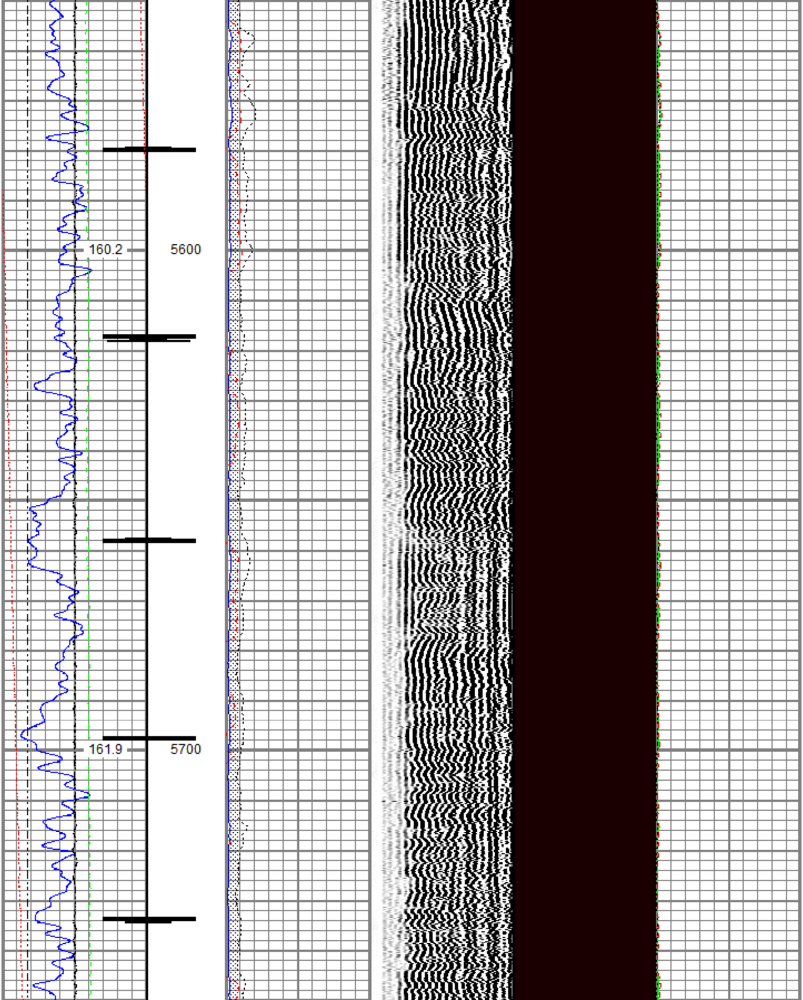
5400
Marker Joint
158.5
5500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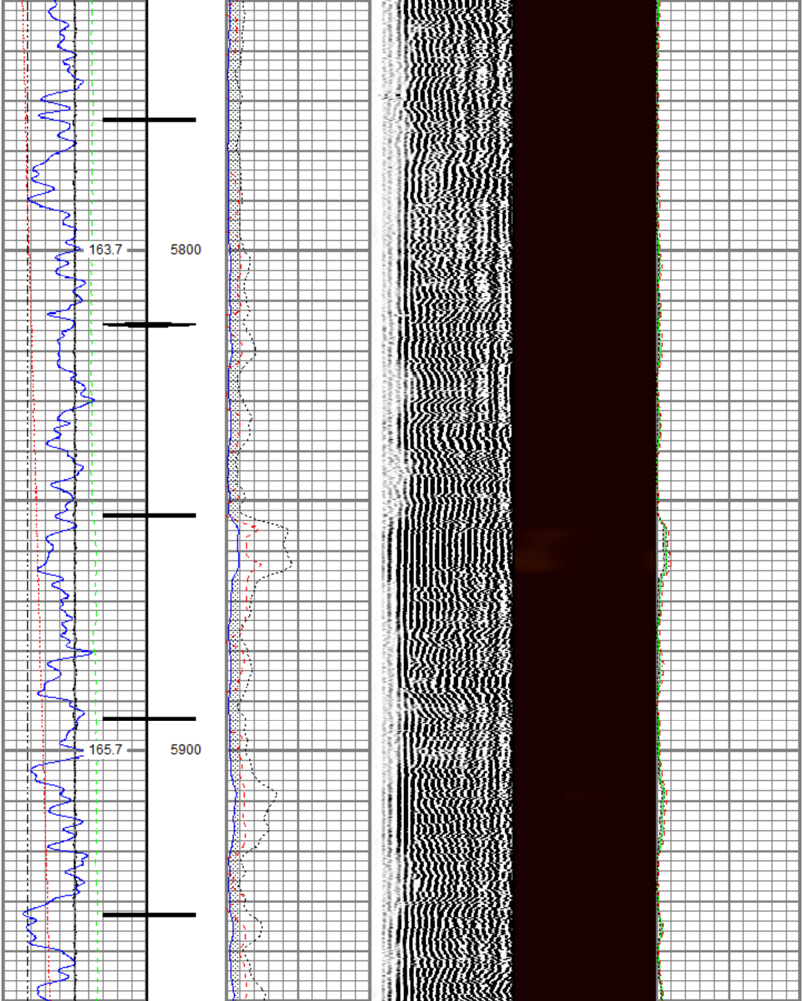
161.9
5700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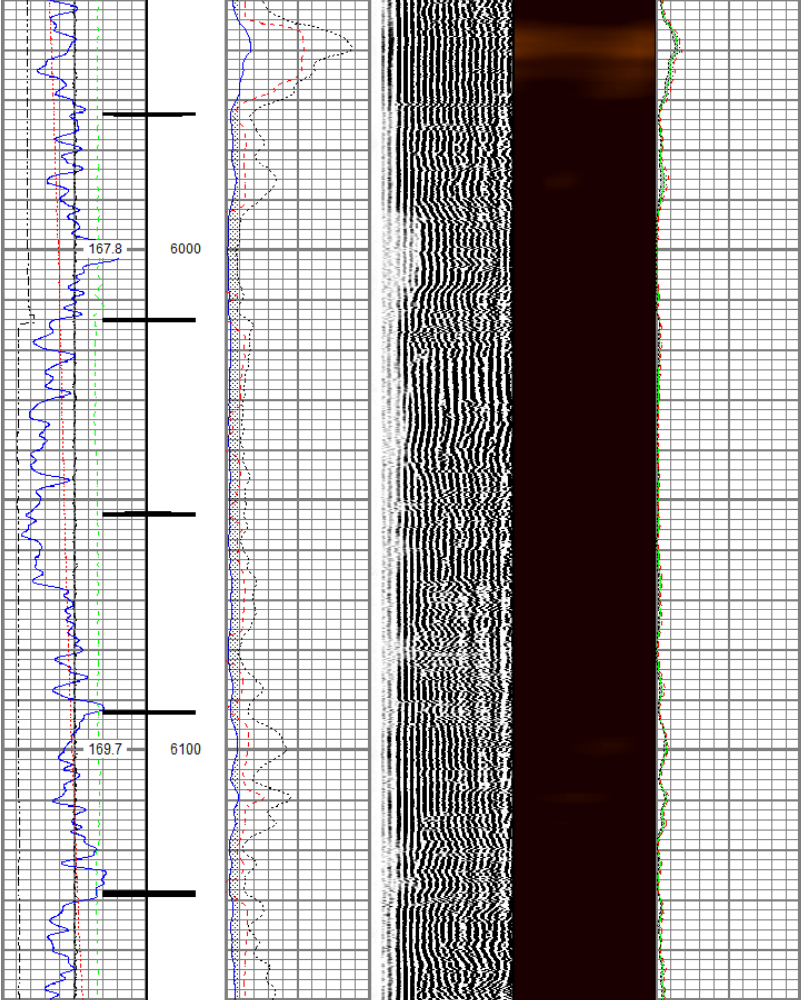
5900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169.7
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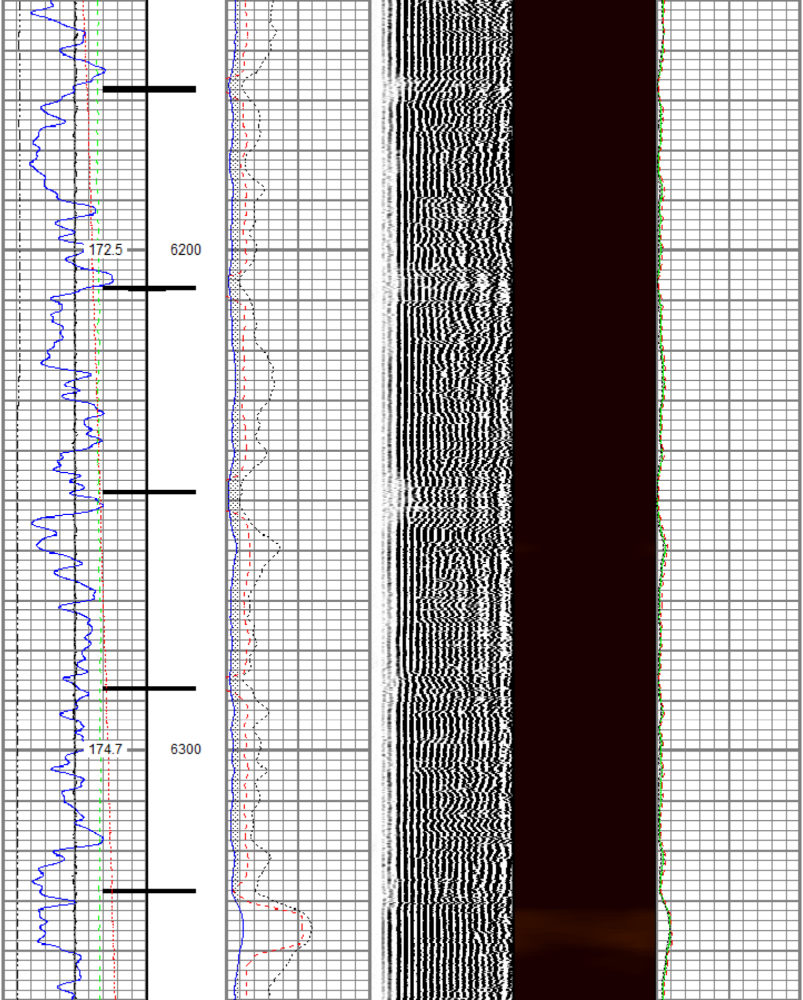
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6200
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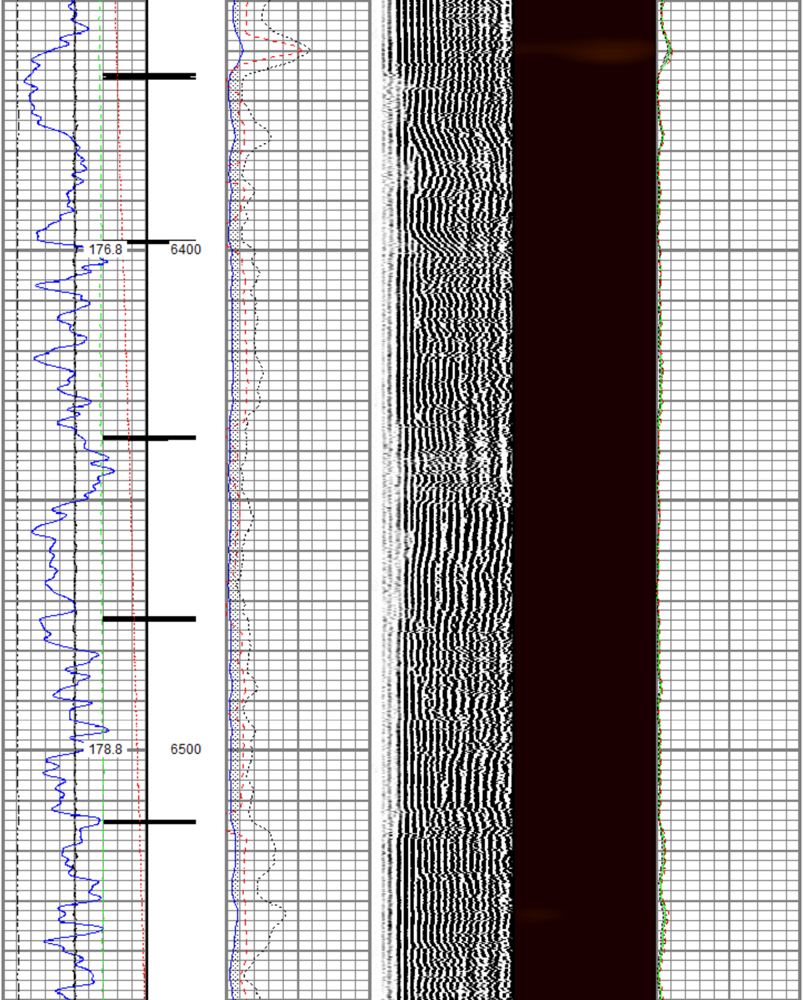
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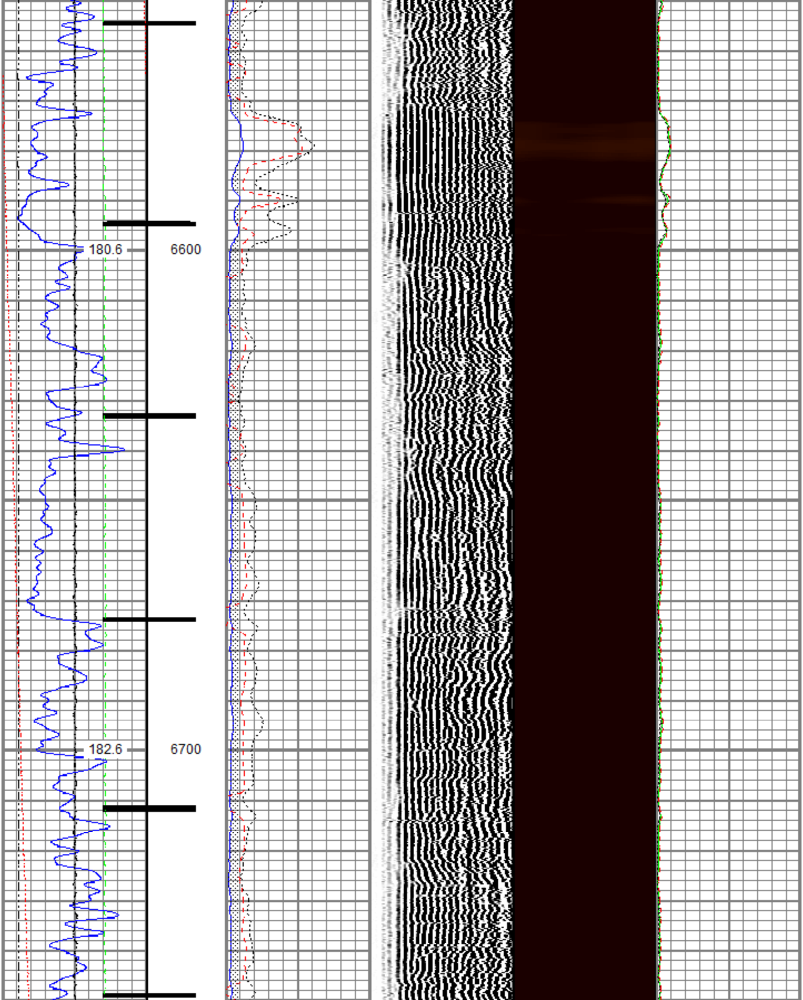
178.8
6500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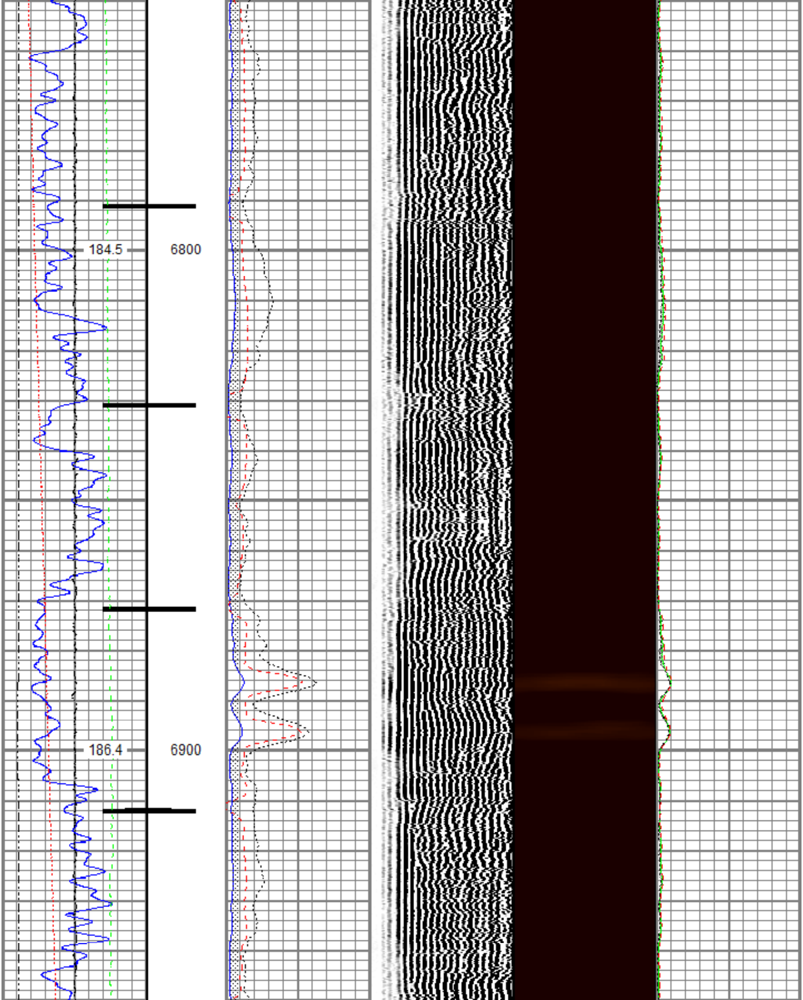
6700



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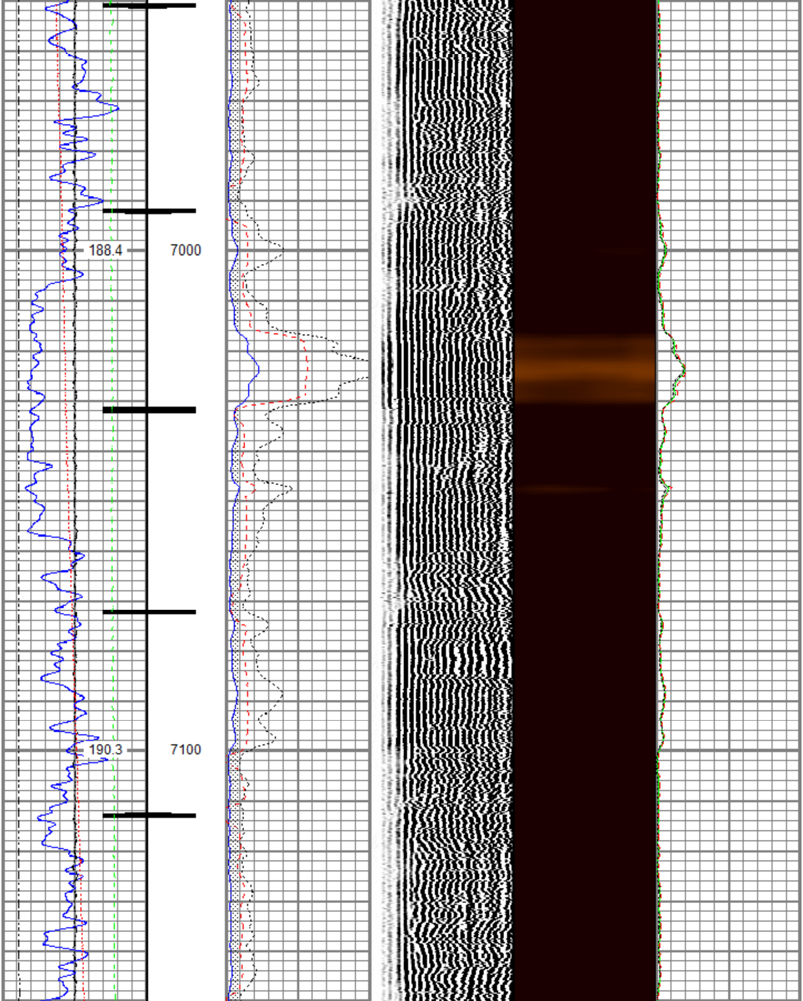
6800
186.4
6900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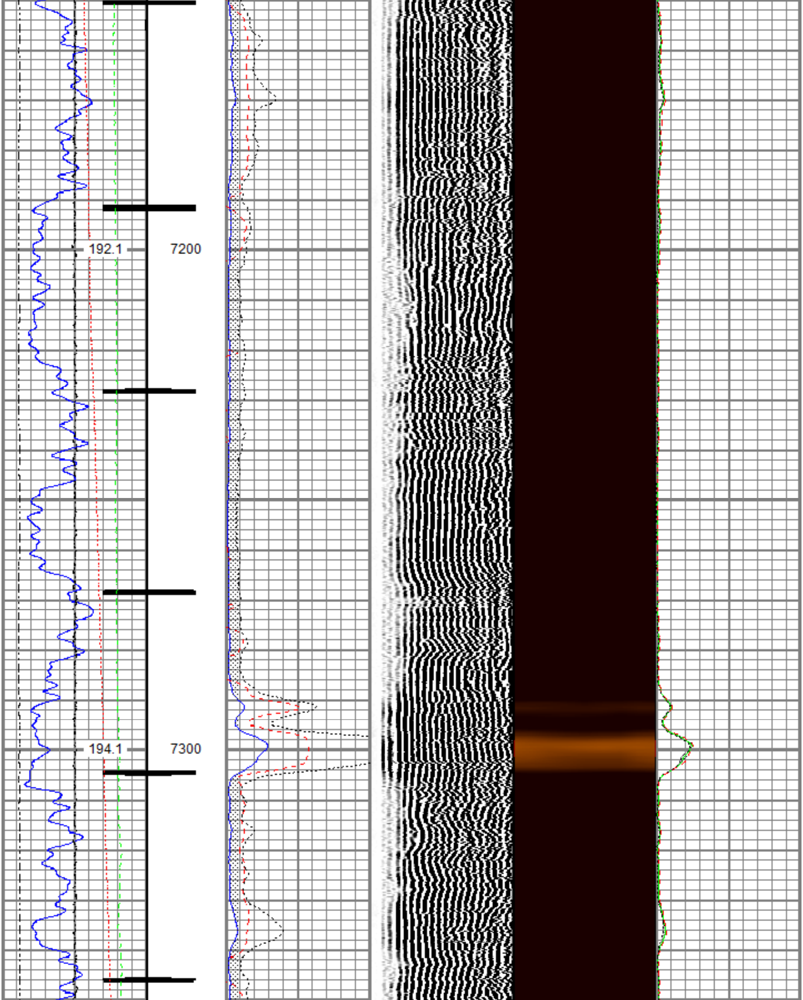
7000
190.3
7100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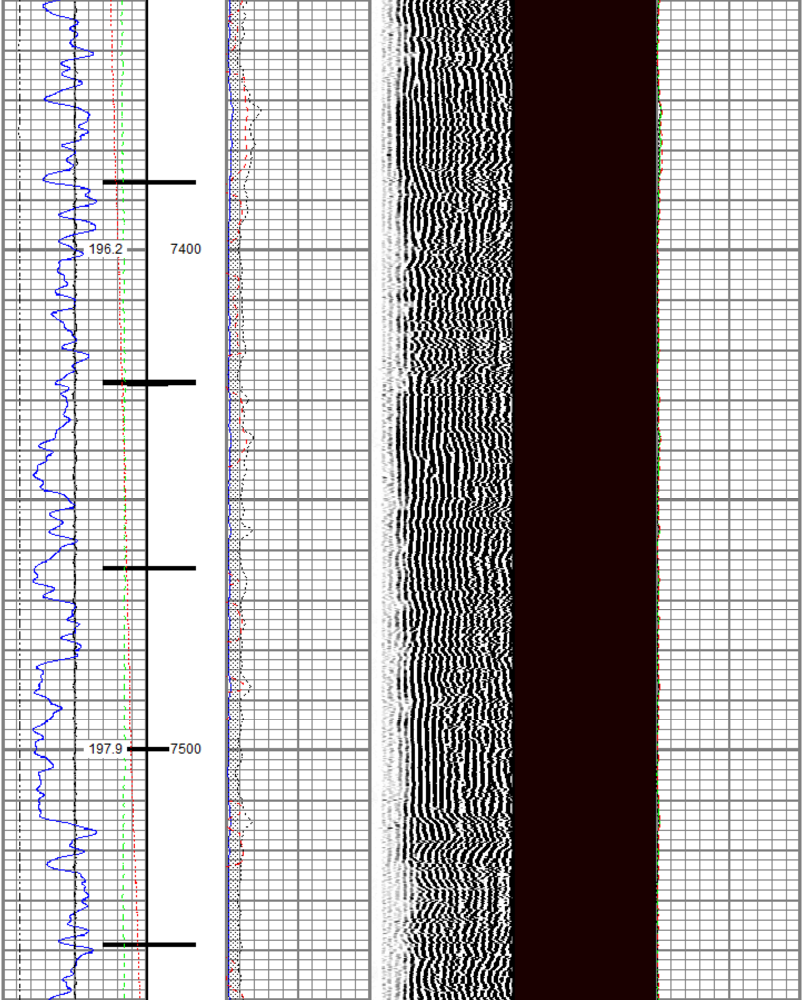
7200
194.1
7300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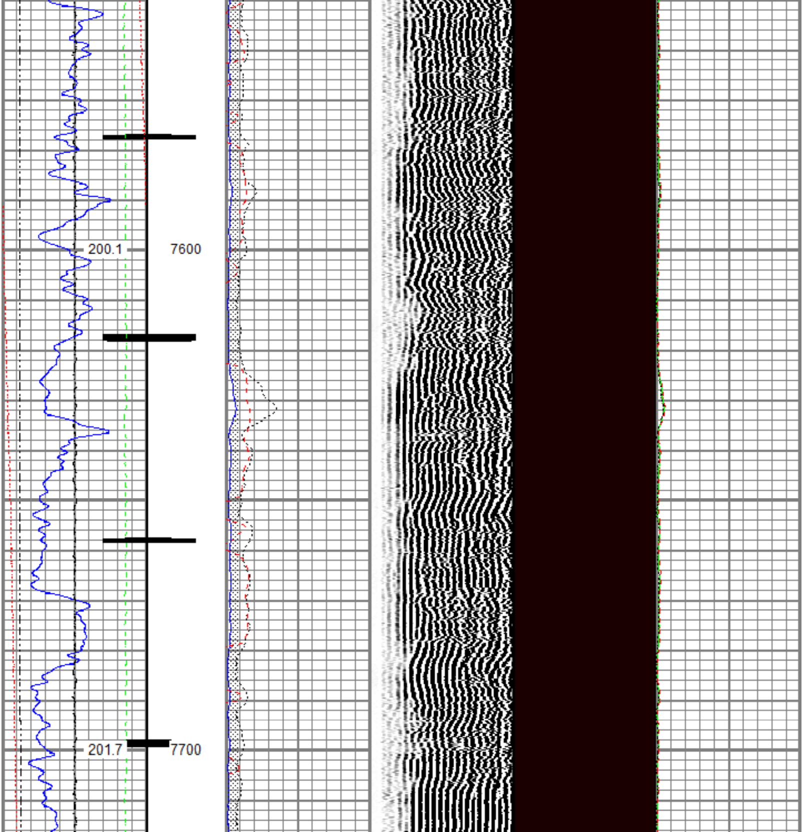
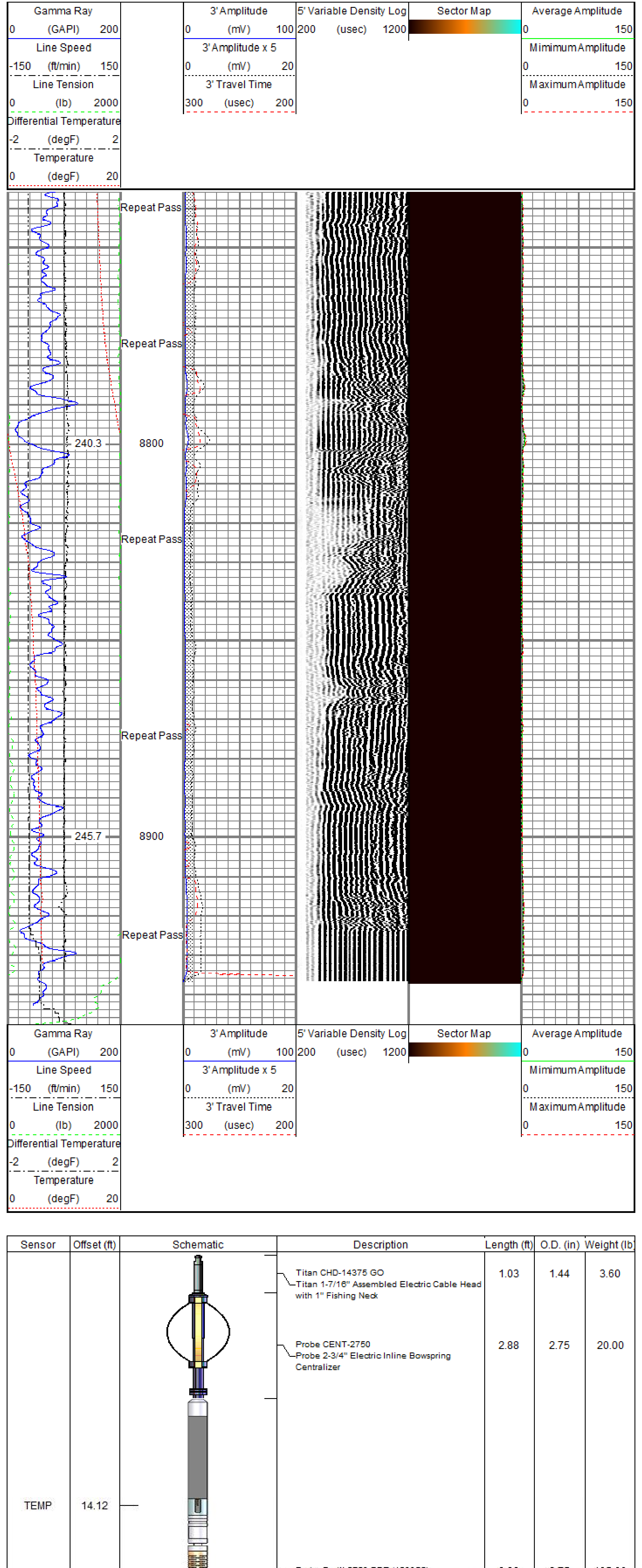
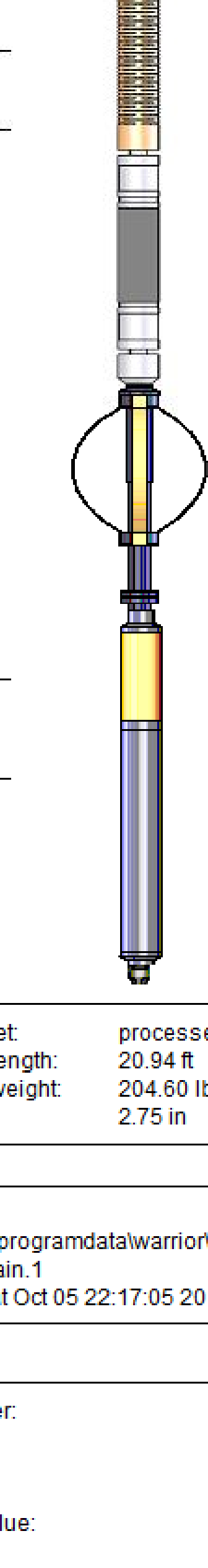

200.1
7600
201.7
7700

Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 522-24\processed_tep_federal pa 522-24_rbl_10-04-19.db
Dataset Pathname	Repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Sat Oct 05 22:31:54 2019
Charted by	Depth in Feet scaled 1:240





Sensor	Offset (ft)
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
CCL$2	3.88
CCL$1	3.88
GR	2.63

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
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: processed_tep_federal pa 522-24_rbl_10-04-19.db: field/well/run1/Main.1
Total length: 20.94 ft
Total weight: 204.60 lb
O.D.: 2.75 in

Calibration Report

Dataset File c:\programdata\warrior\data\tep\federal pa 522-24\processed_tep_federal pa 522-24_rbl_10-04-19.db
Dataset Pathname Main.1
Dataset Creation Sat Oct 05 22:17:05 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:	1365.485	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.013	1.015	0.800	81.196	80.199	-0.235
CAL	0.008	1.008				
5'	0.015	0.876	0.800	81.196	93.356	-0.578
SUM						
S1	0.006	1.111	0.000	100.000	90.430	-0.500
S2	0.010	1.043	0.000	100.000	96.743	-0.945
S3	0.009	1.006	0.000	100.000	100.287	-0.884
S4	0.009	1.010	0.000	100.000	99.980	-0.937
S5	0.009	1.038	0.000	100.000	97.187	-0.836
S6	0.009	1.050	0.000	100.000	96.118	-0.898
S7	0.009	1.050	0.000	100.000	96.048	-0.829
S8	0.010	1.043	0.000	100.000	96.793	-0.969

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.008	1.008	1.000	0.000

Air Zero Calibration, performed Wed Sep 25 04:23:19 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	

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Well	Federal PA 522-24
Field	Parachute
County	Garfield
State	Colorado