RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 413-24
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 413-24
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23896
SEC 24 TWP 6S RGE 95W

Other Services

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

Date	22-SEPT-2019
Run Number	One
Depth Driller	8935 FT
Depth Logger	8869 FT
Bottom Logged Interval	8857 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	244°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	10:40
Equipment Number	HD-0359
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	1122 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8894 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 5381 - 5403 FT
Log ran with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

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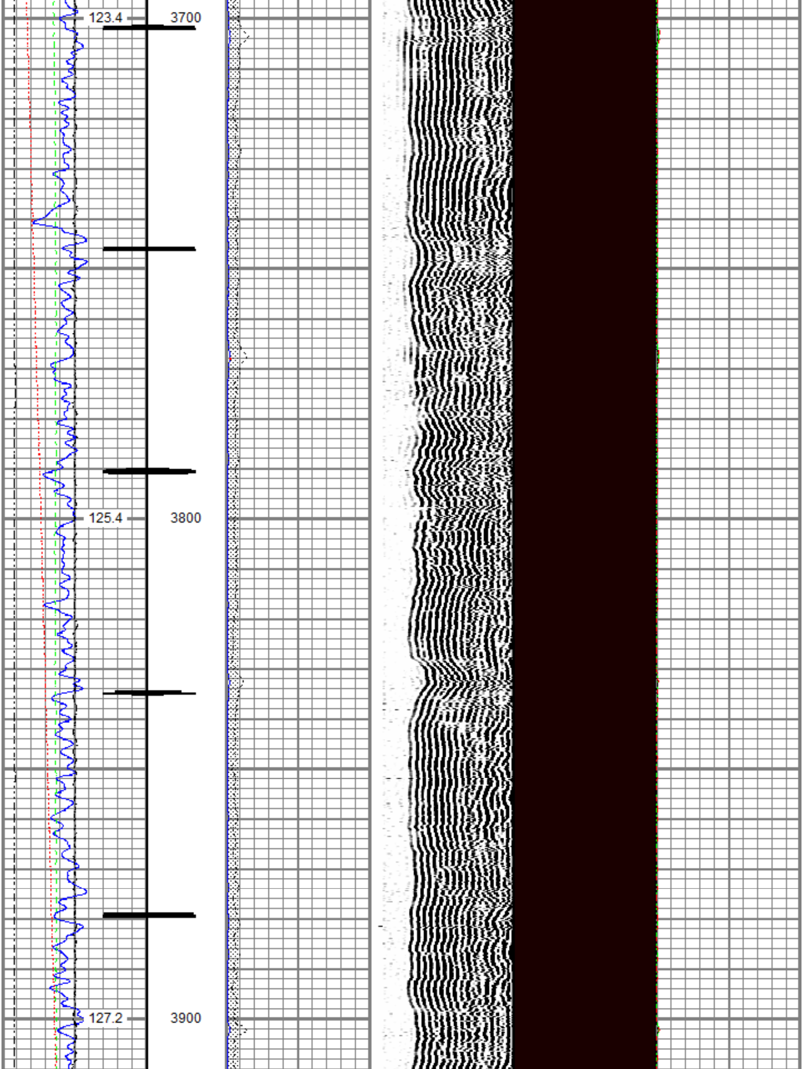
Main Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal pa 413-24_rbl_09-22-19\processed_tep_federal pa 413-24_rbl_09-22-19.db
Dataset Pathname	Main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 23 14:24:52 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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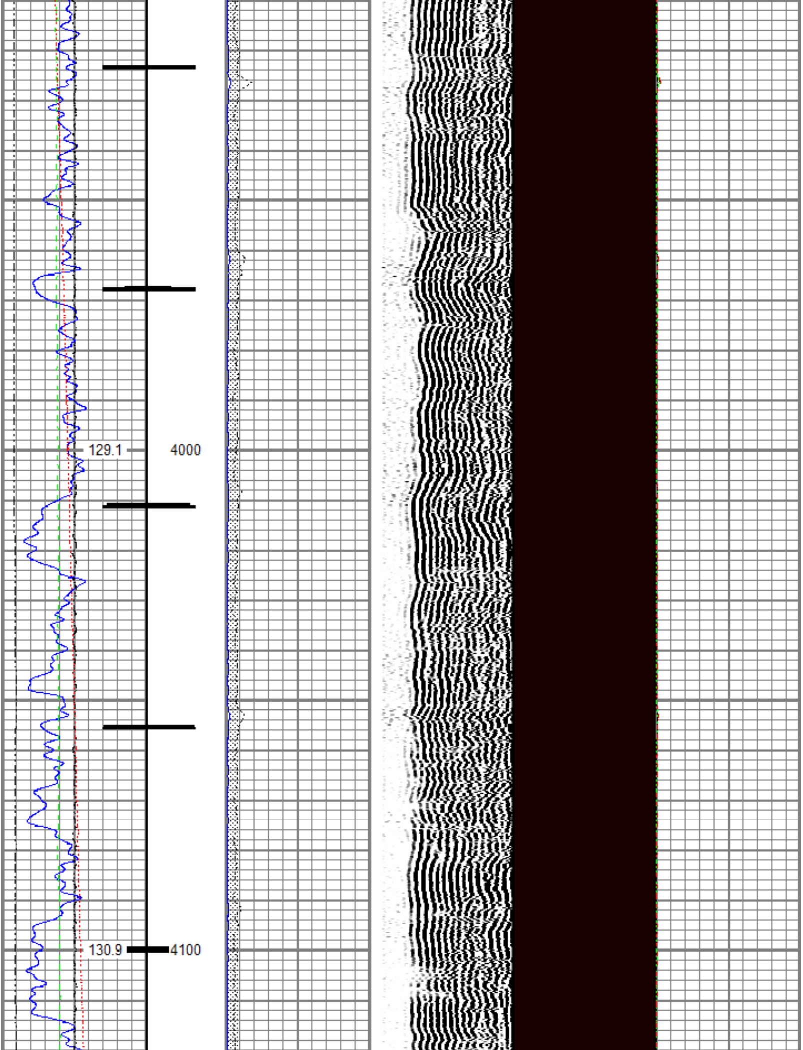
125.4
3800
127.2
3900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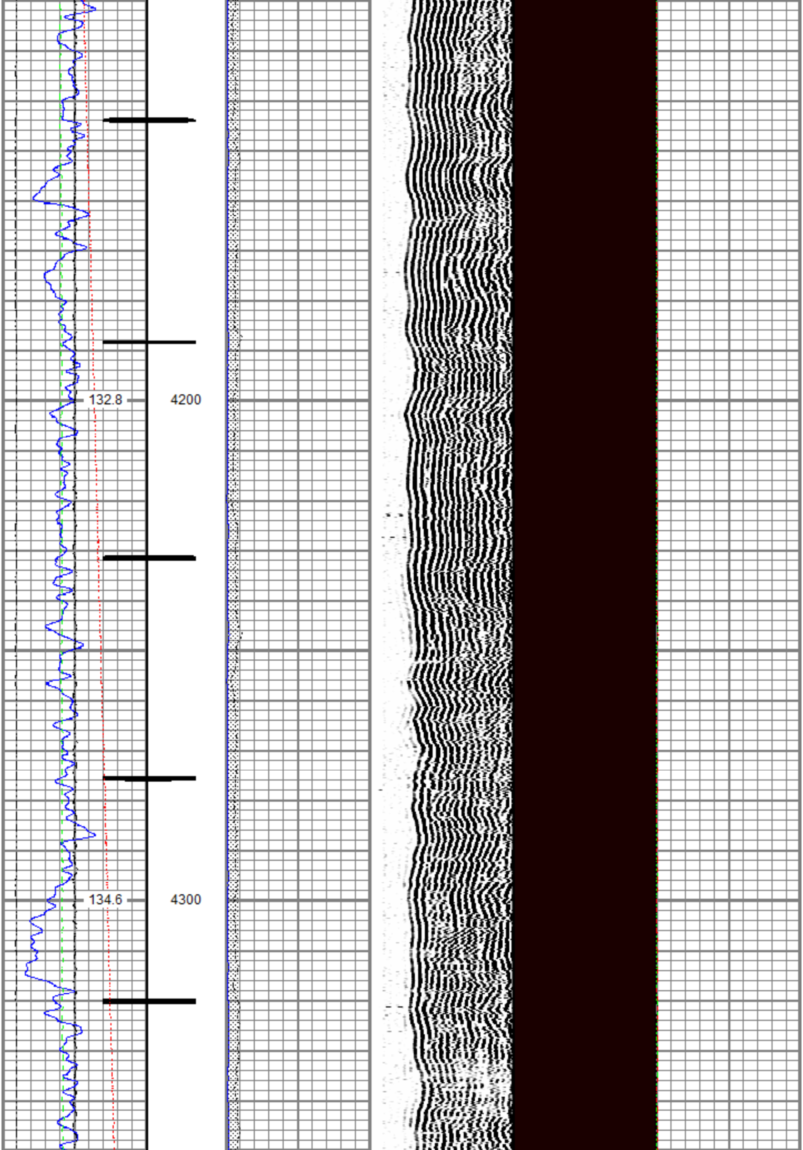
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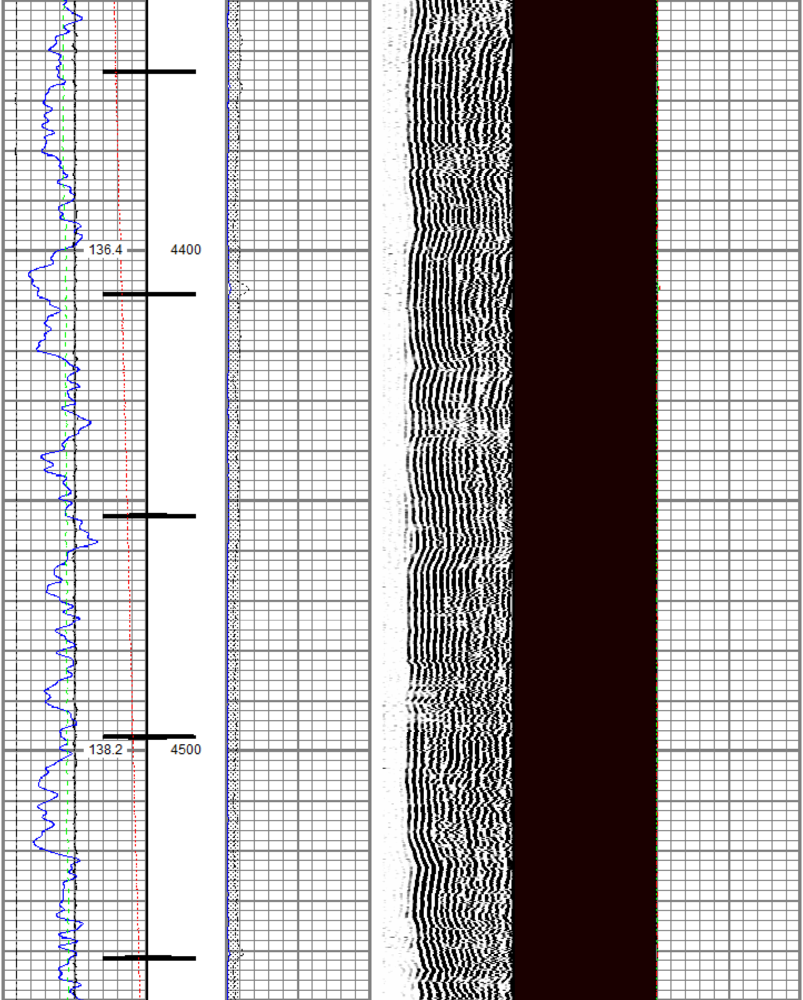
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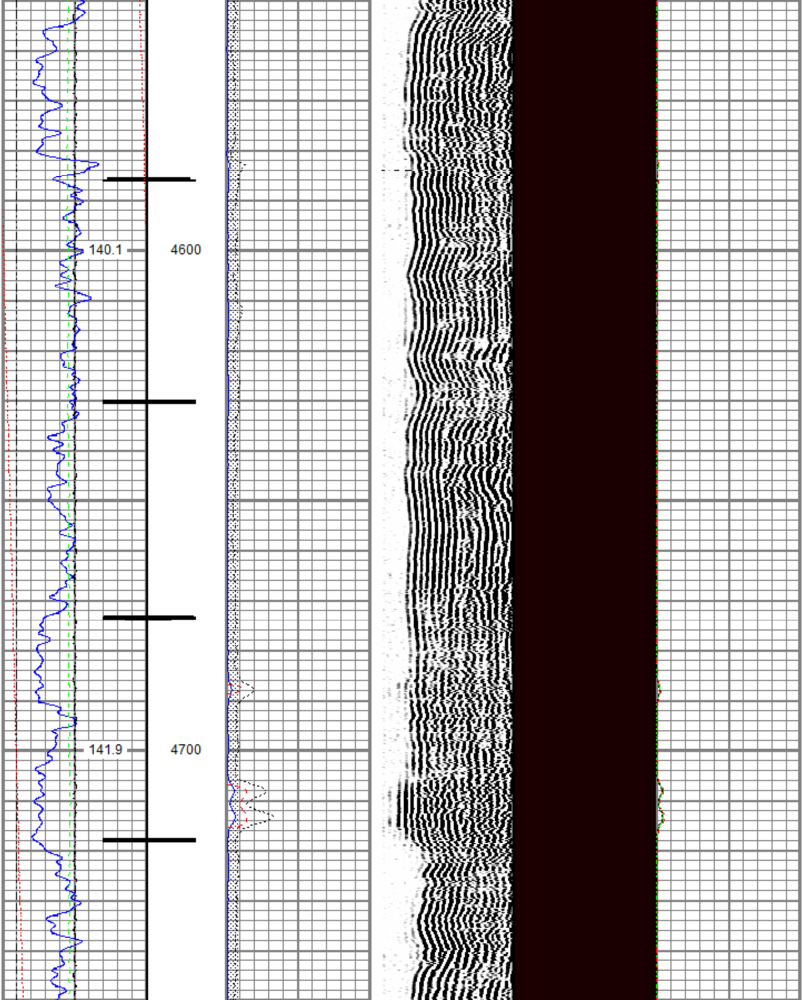
138.2
4500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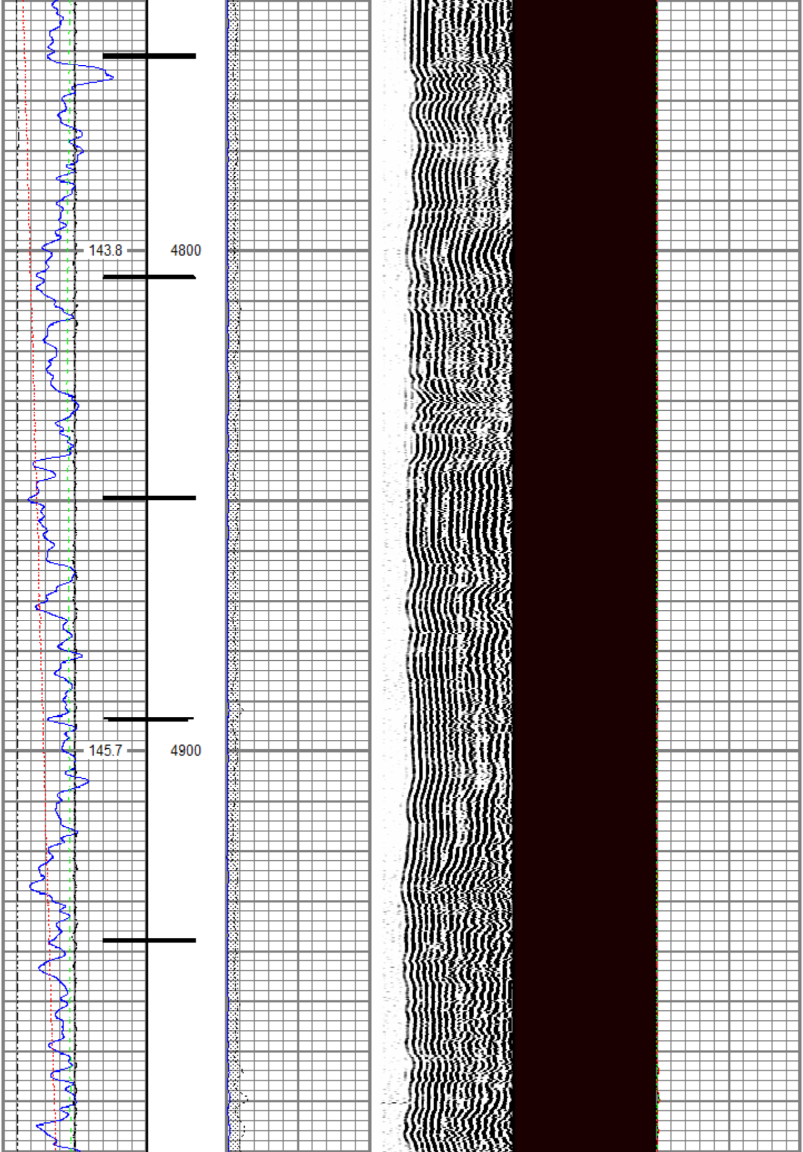
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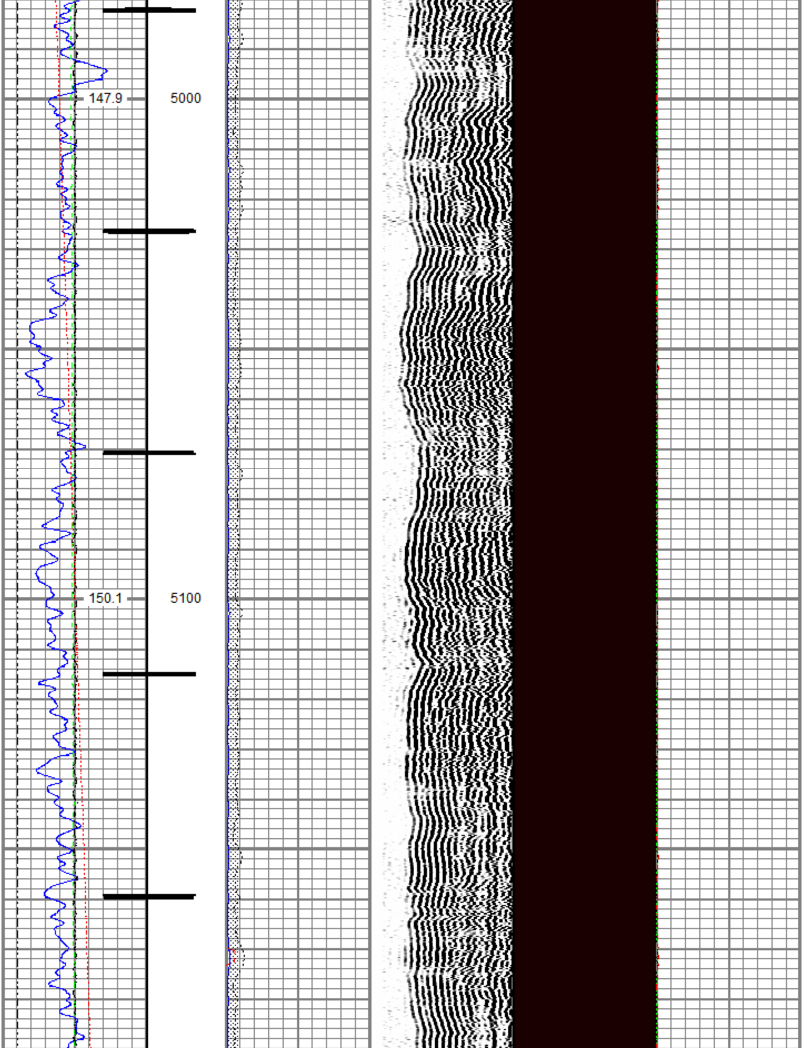
145.7
4900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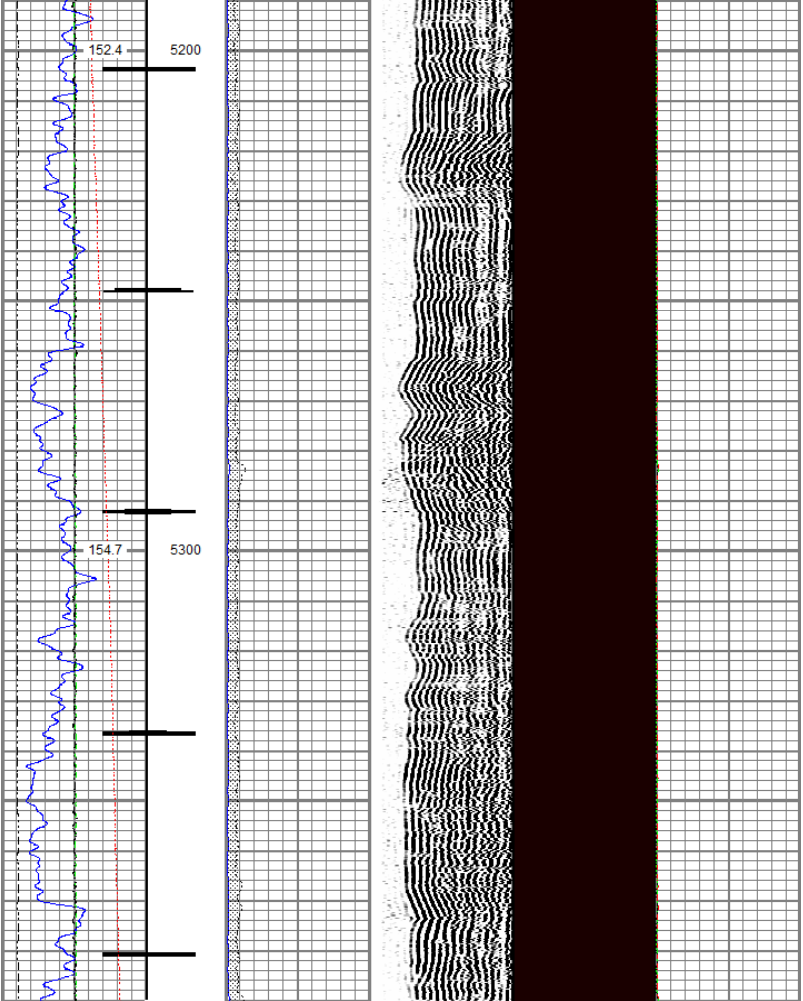
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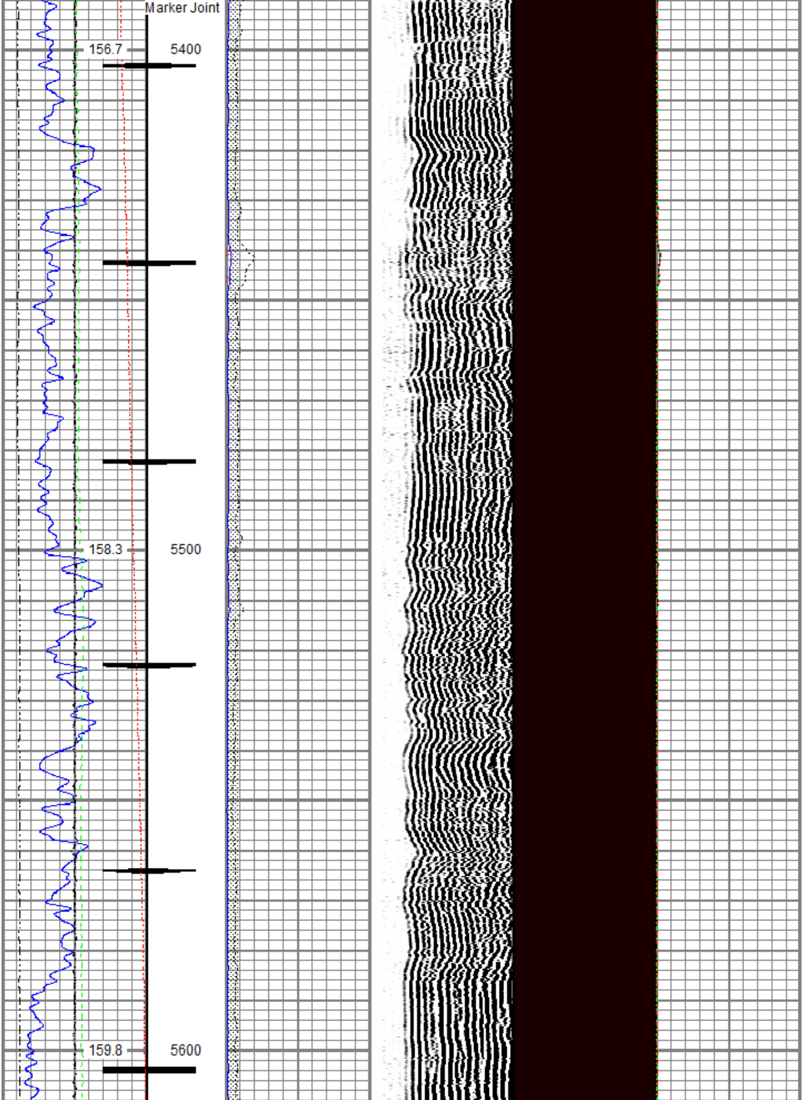
Marker Joint
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159.8
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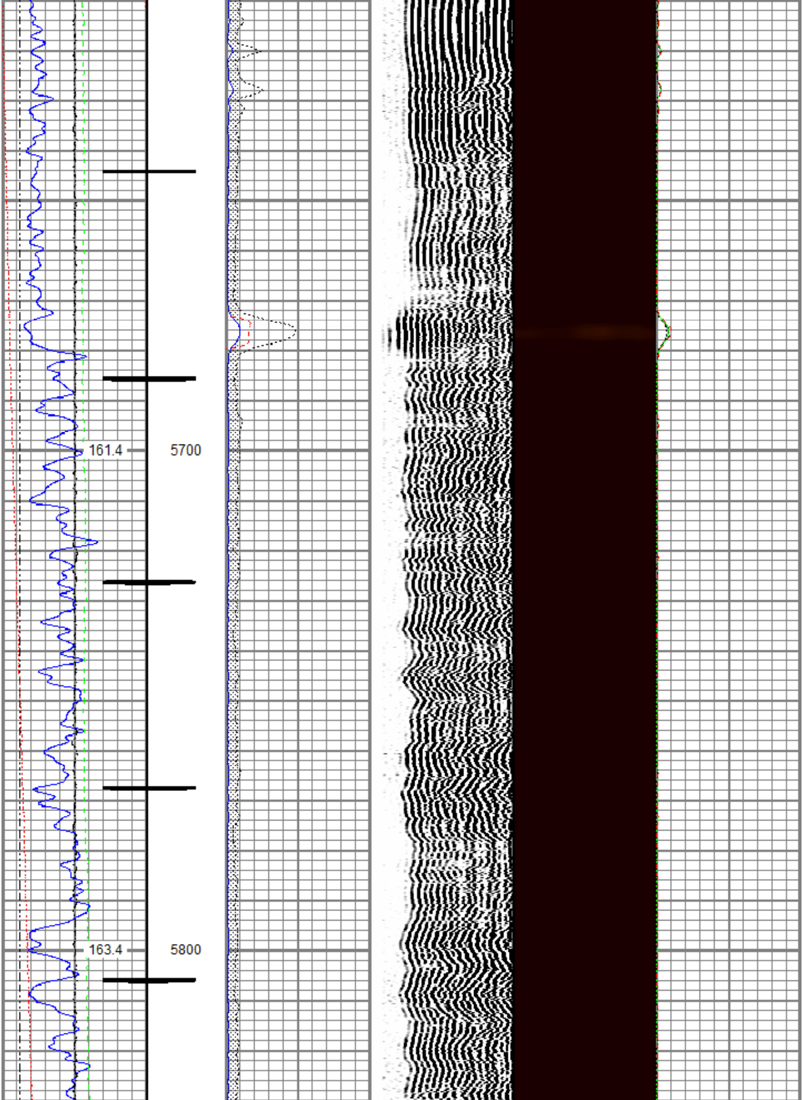
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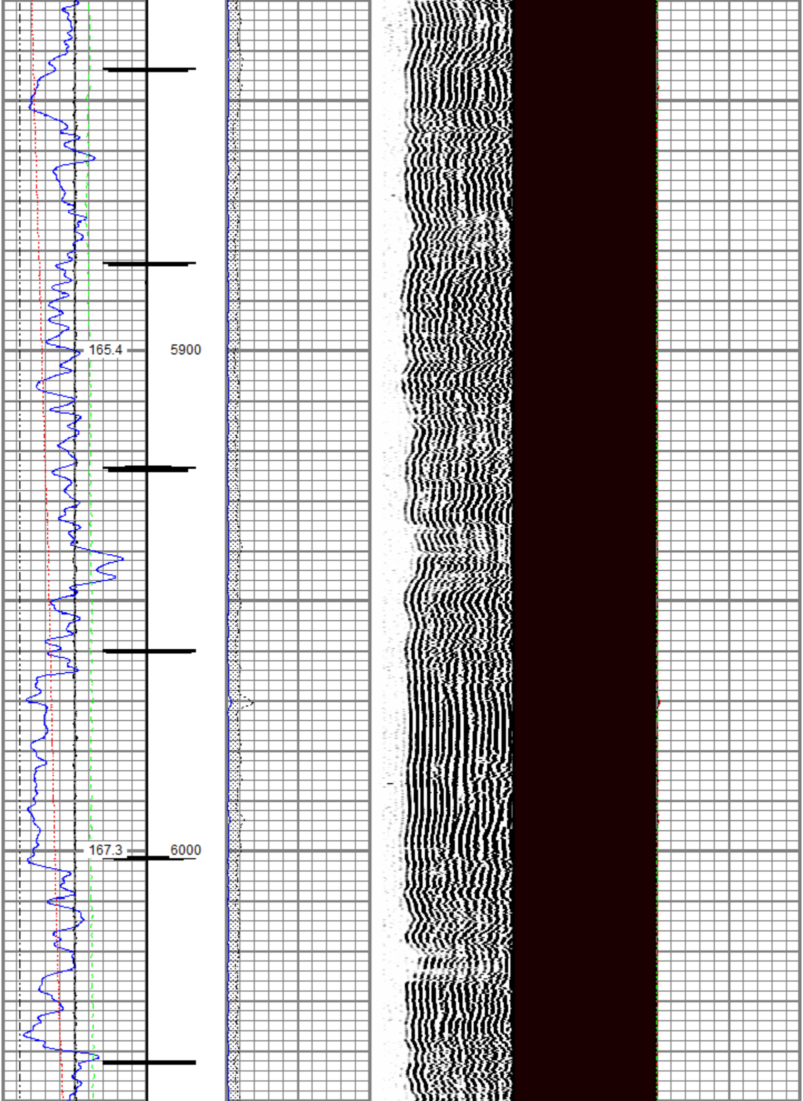
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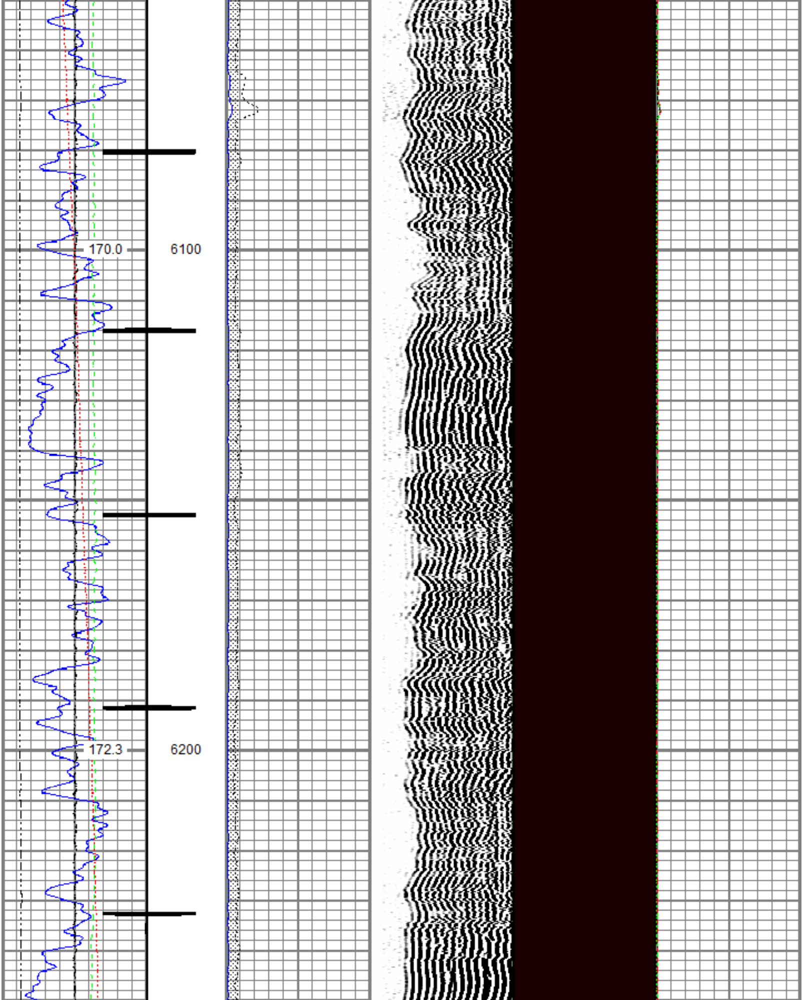
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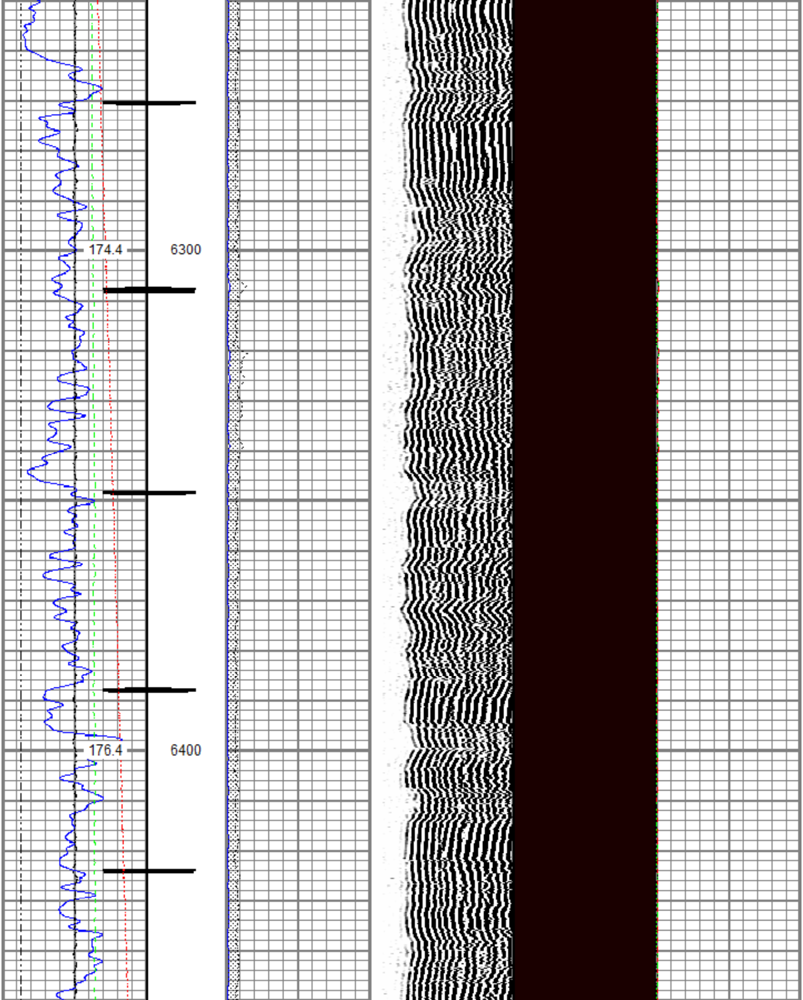
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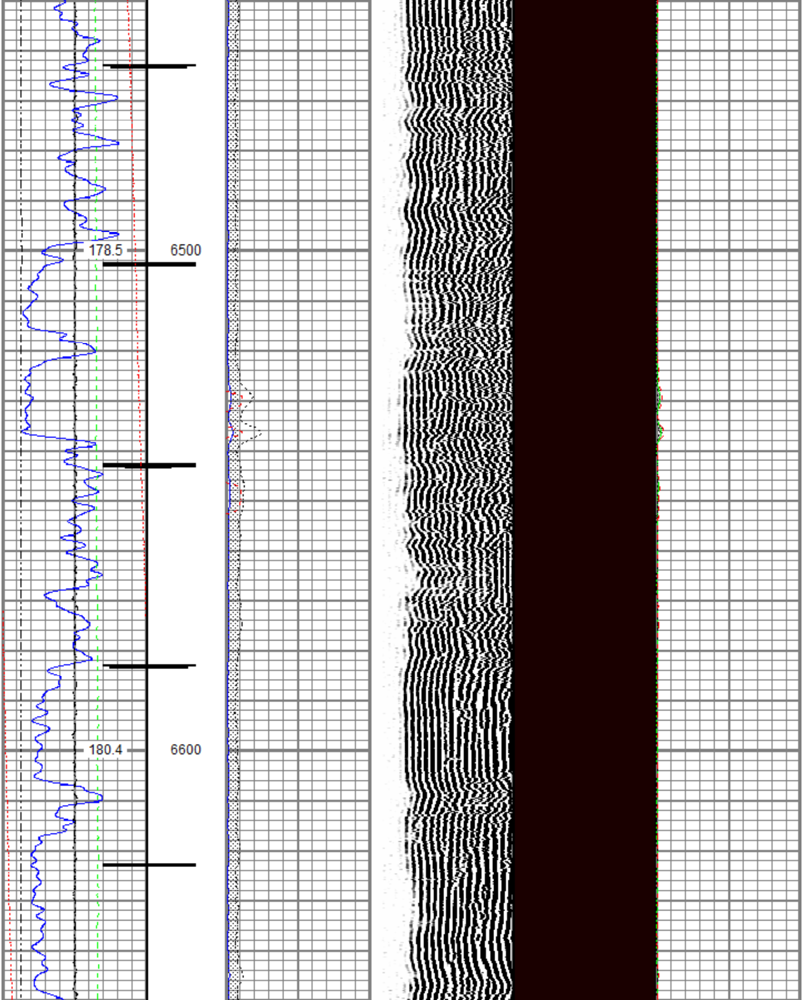
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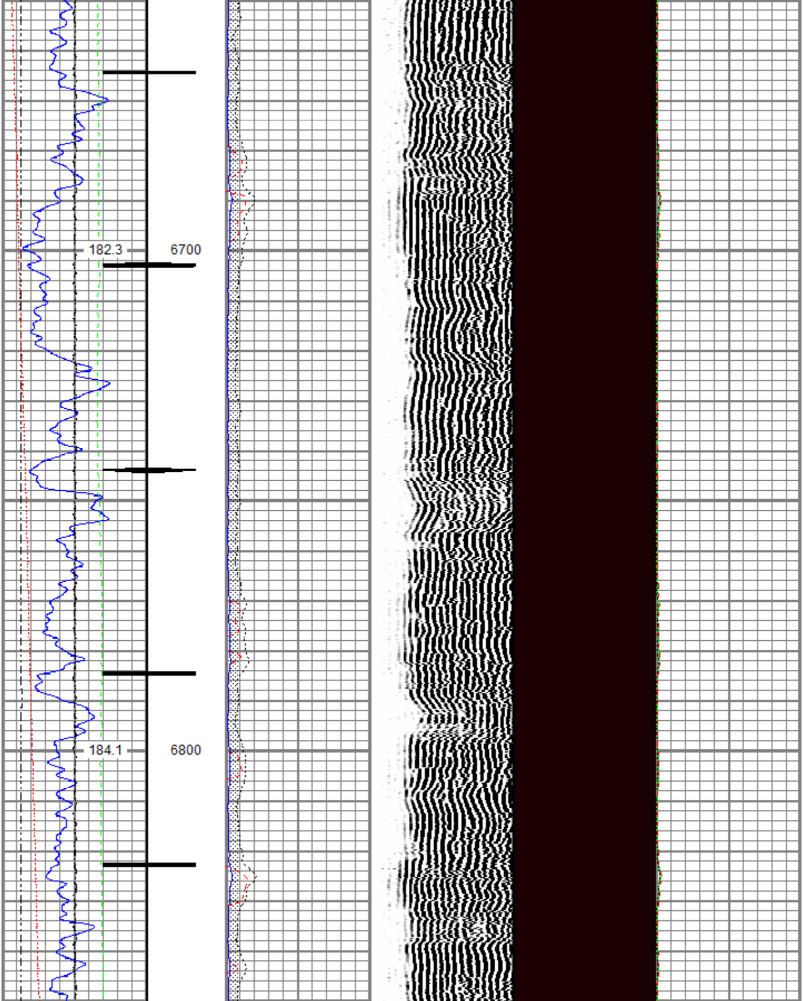
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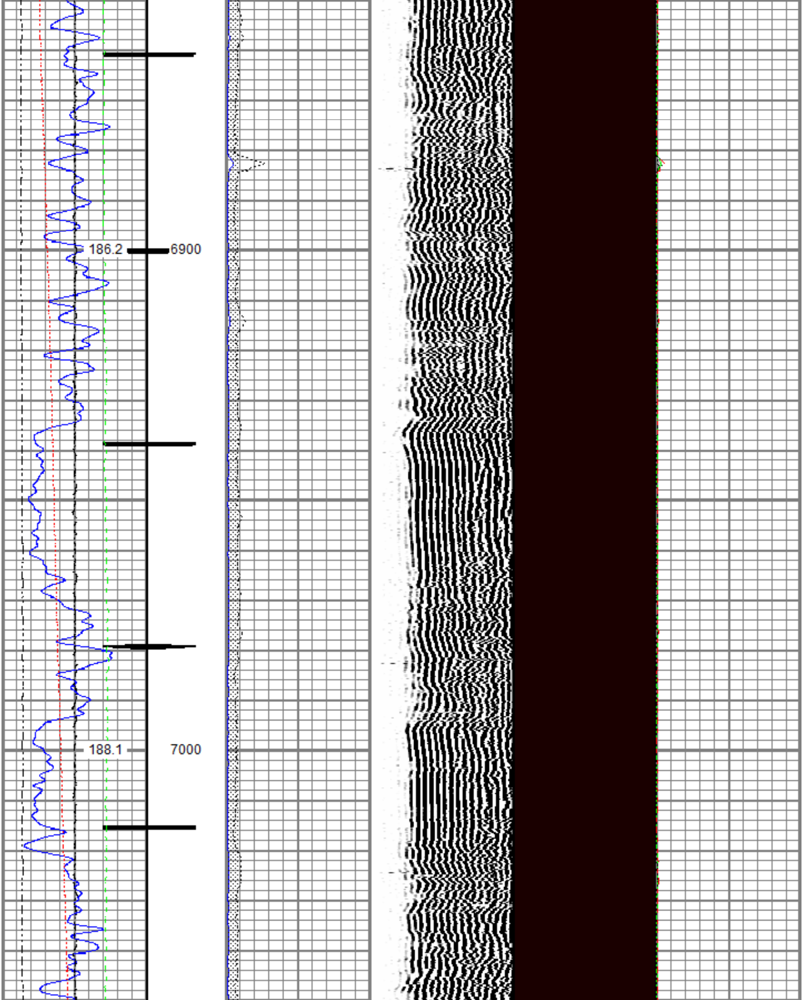
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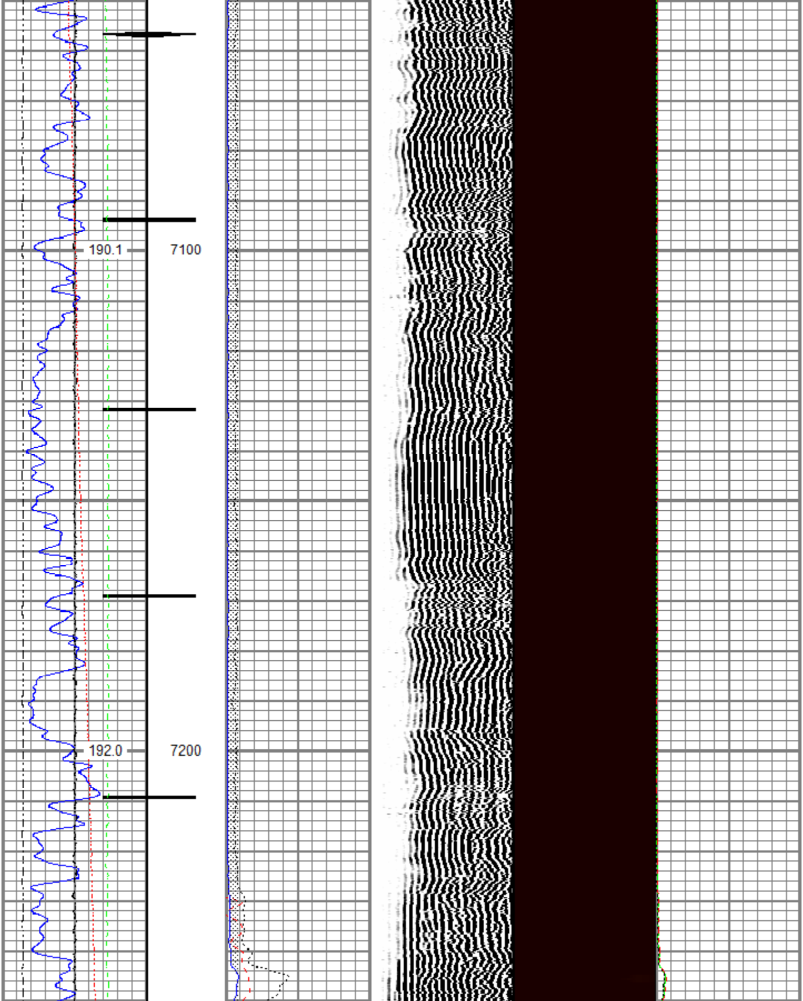
188.1
7000


190.1
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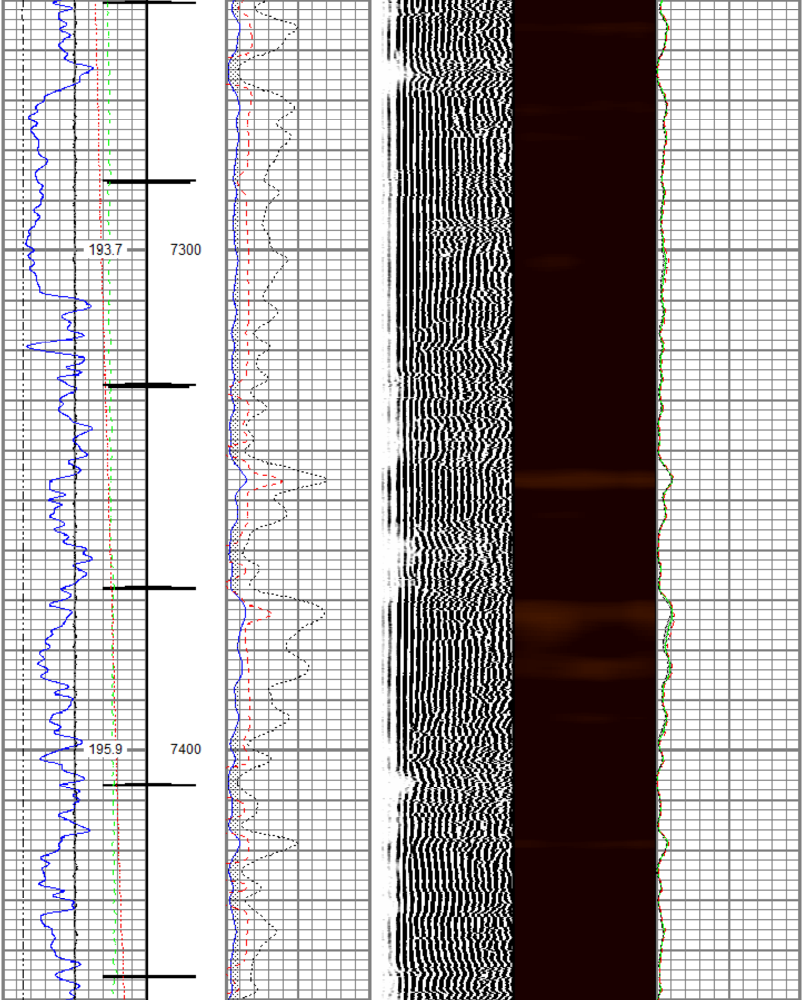
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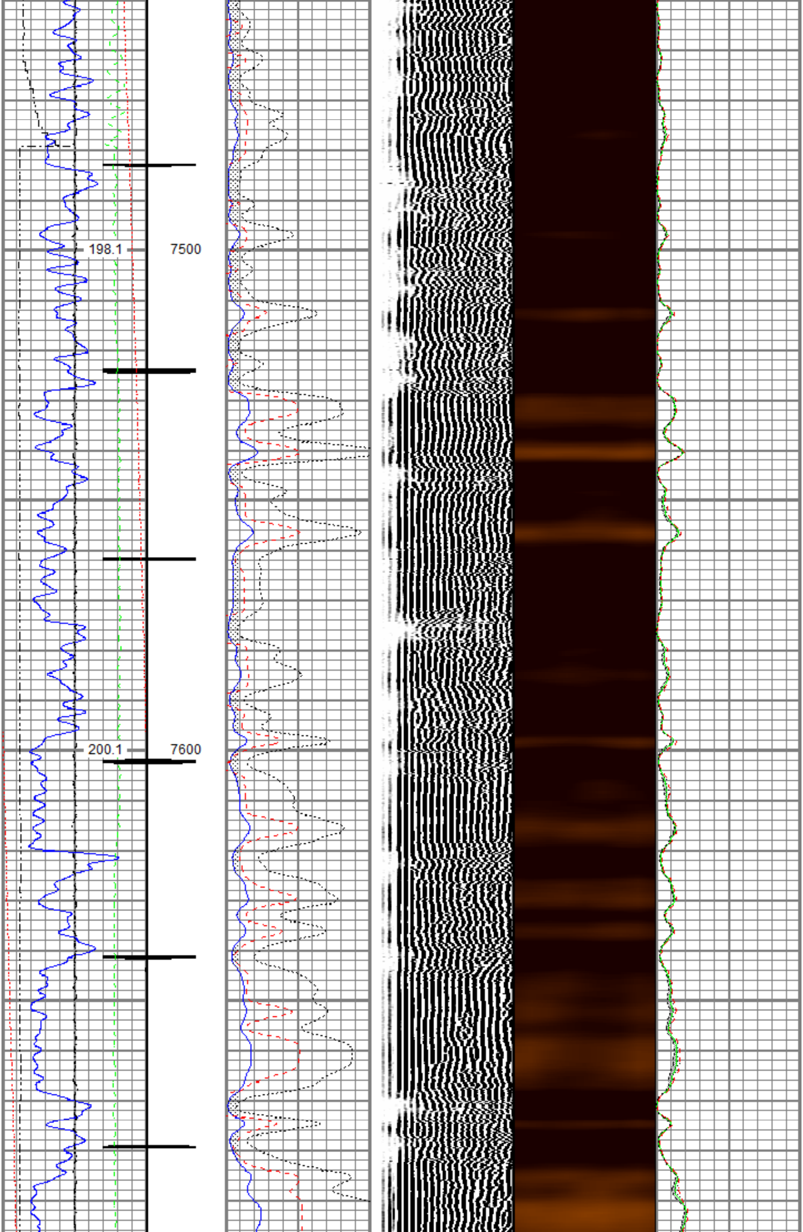
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7500
200.1
7600

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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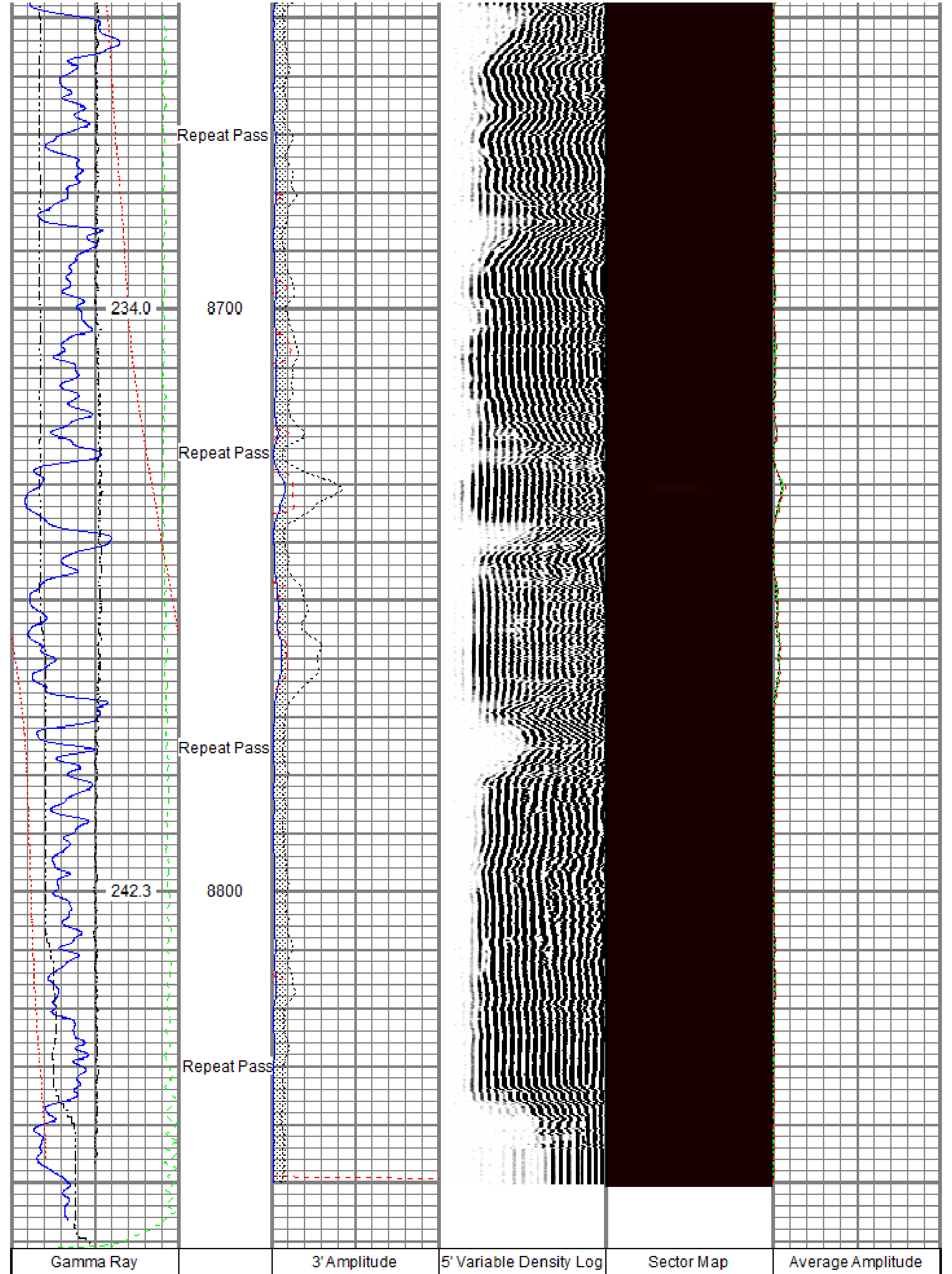
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\tep_federal pa 413-24_rbl_09-22-19\processed_tep_federal pa 413-24_rbl_09-22-19.db
Dataset Pathname	Repeat1.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 23 14:39:21 2019
Charted by	Depth in Feet scaled 1:240

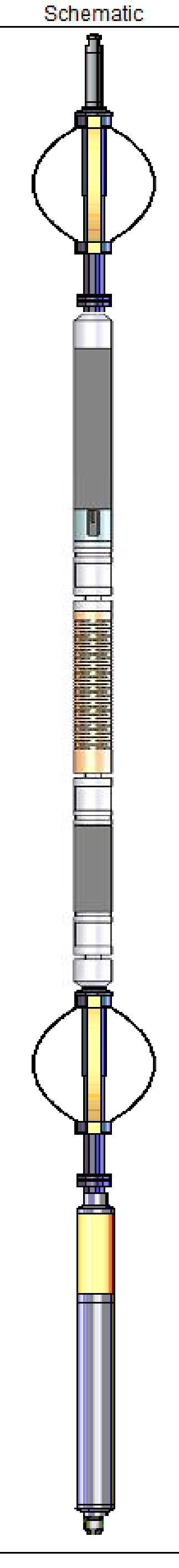
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential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

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
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 413-24_rbl_09-22-19.db: field/well/run1/Main.1
Total length: 20.94 ft
Total weight: 204.60 lb
O.D.: 2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\tep_federal pa 413-24_rbl_09-22-19\processed_tep_federal pa 413-24_rbl_
Dataset Pathname	Main.1
Dataset Creation	Mon Sep 23 14:24:52 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:	30.457	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.002	0.788	0.800	81.196	101.710	1.051
CAL	-0.006	0.748				
5'	-0.001	0.642	0.800	81.196	125.064	0.934
SUM						
S1	-0.005	0.807	0.000	100.000	123.188	0.571
S2	-0.003	0.815	0.000	100.000	122.175	0.426
S3	-0.003	0.821	0.000	100.000	121.279	0.372
S4	-0.004	0.851	0.000	100.000	116.909	0.469
S5	-0.004	0.877	0.000	100.000	113.533	0.427
S6	-0.003	0.836	0.000	100.000	119.187	0.383
S7	-0.004	0.783	0.000	100.000	127.149	0.475
S8	-0.003	0.738	0.000	100.000	135.100	0.343

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.006	0.748	1.000	0.000

Air Zero Calibration, performed Sun Sep 22 06:28:28 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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