Company TEP Rocky Mountain LLC
Well Federal PA 612-26
Field Parachute
County Garfield
State Colorado

RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC		
Well	Federal PA 612-26		
Field	Parachute		
County	Garfield	State	Colorado
Location:	API # : 05-045-23712		Other Services
	SEC 26 TWP 6S RGE 95W		PN
Permanent Datum	Ground Level	Elevation 5636.9'	Elevation
Log Measured From	Kelly Bushing 24 FT		K.B. 5660.9'
Drilling Measured From	Kelly Bushing		D.F. 5659.9' G.L. 5636.9'

Date	02-SEP-2018
Run Number	One
Depth Driller	8927 FT
Depth Logger	8860 FT
Bottom Logged Interval	8846 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	234°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	10:45
Equipment Number	HD-0359
Location	Grand Junction, CO
Recorded By	J.Donnelly
Witnessed By	J.Skalla

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	H-40	Surface	1118 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8886 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 4446 FT to 4469 FT
Log ran from 8846 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\federal pa 612-26\tep_federal pa 612-26_rbl_09-02-18.db
Dataset Pathname	main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 03 10:29:45 2018
Charted by	Depth in Feet scaled 1:240

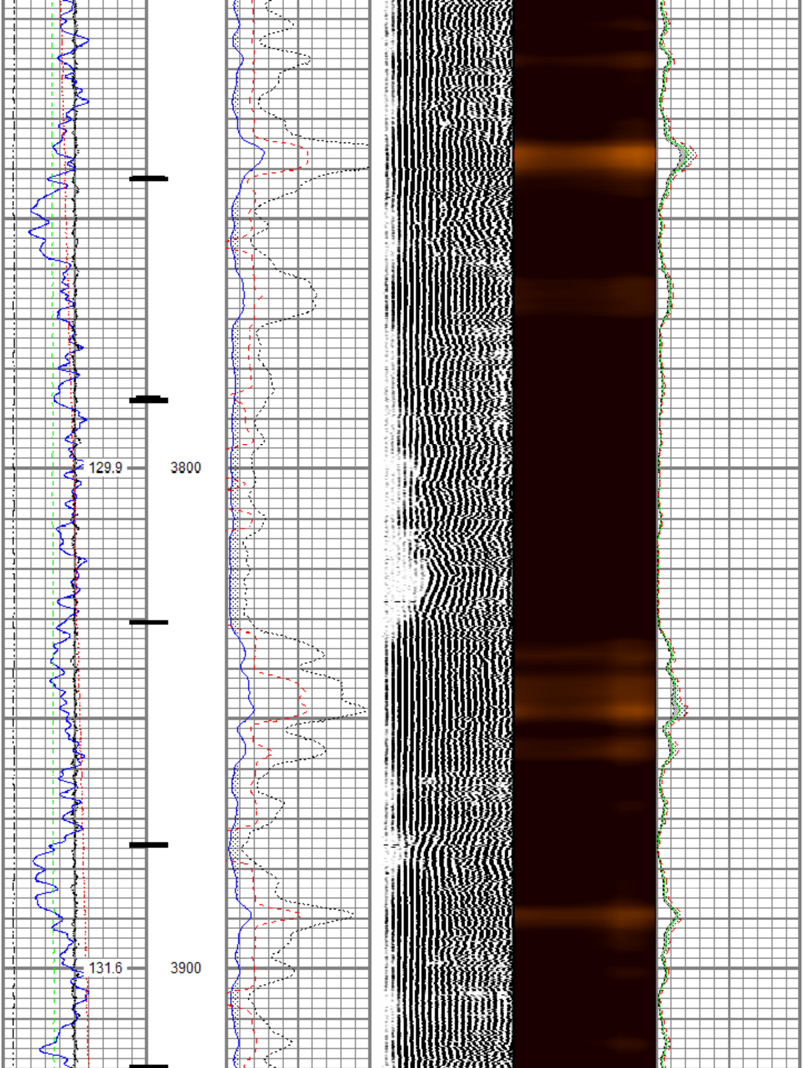
Gamma Ray 0 (GAPI) 200
Casing Collar Locator
Line Speed -150 (ft/min) 150
Line Tension 0 (lb) 2000
Differential Temperature -2 (degF) 2
Temperature 0 (degF) 20

3' Amplitude 0 (mV) 100
3' Amplitude x 5 0 (mV) 20
3' Travel Time 300 (usec) 200

5' Variable Density Log 200 (usec) 1200

Sector Map

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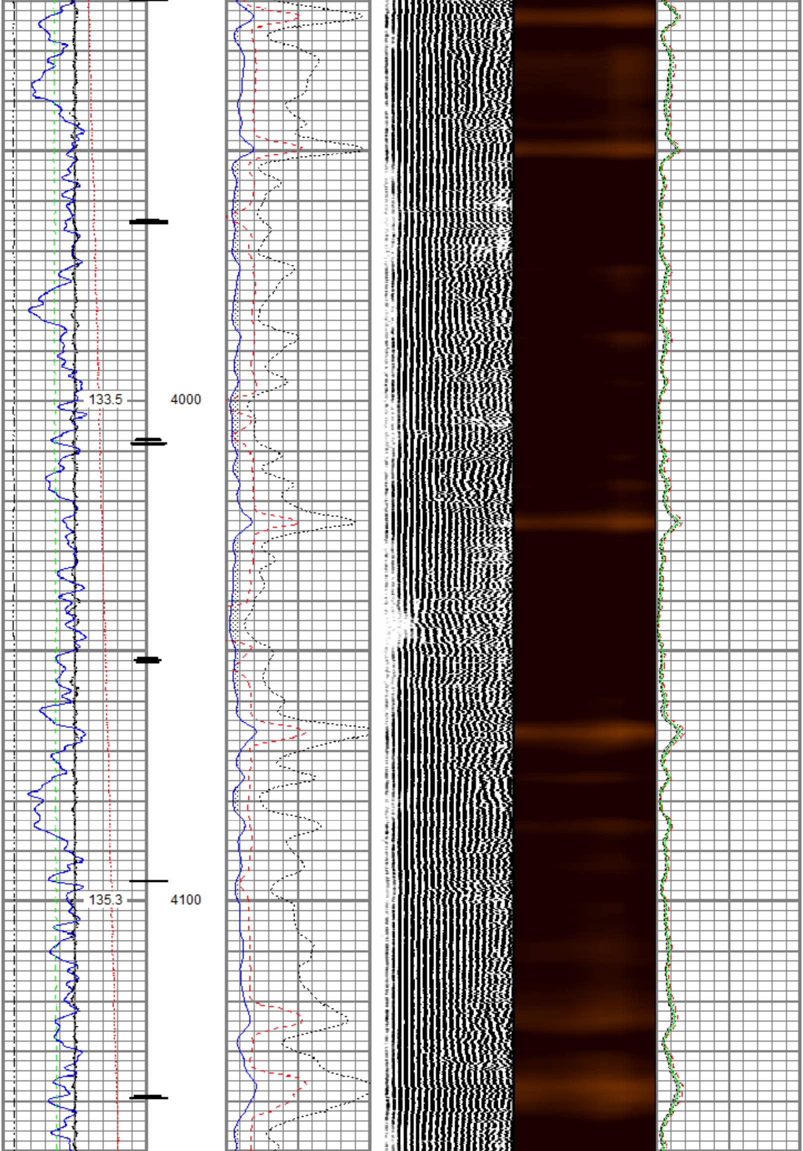
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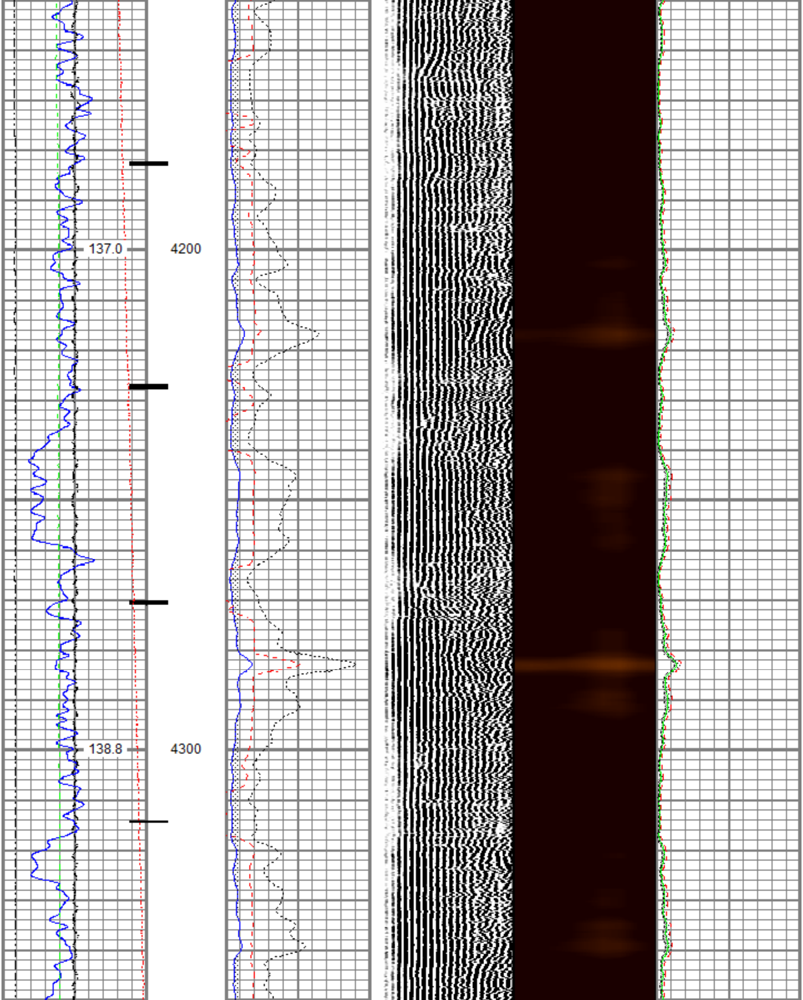
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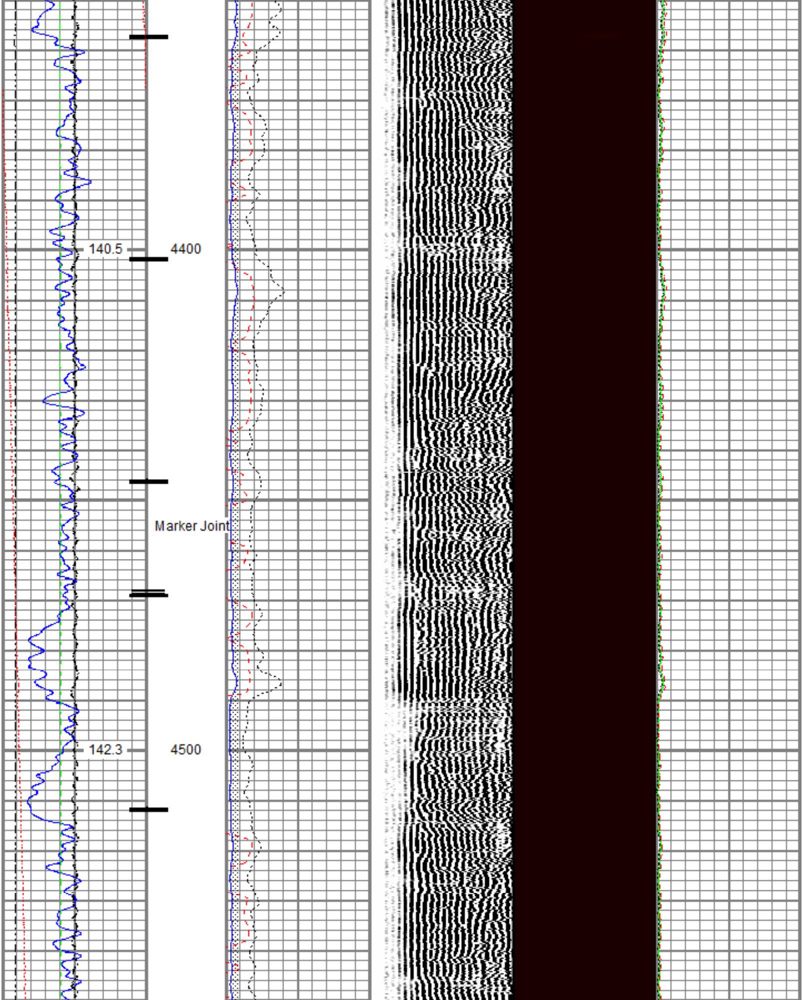
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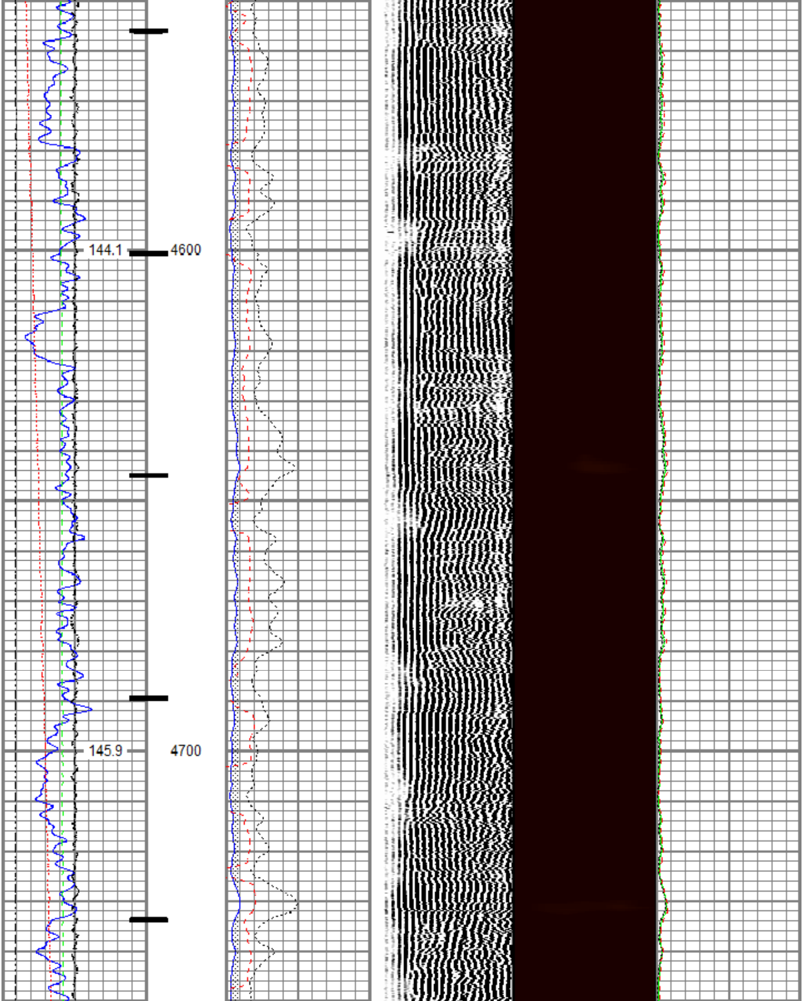
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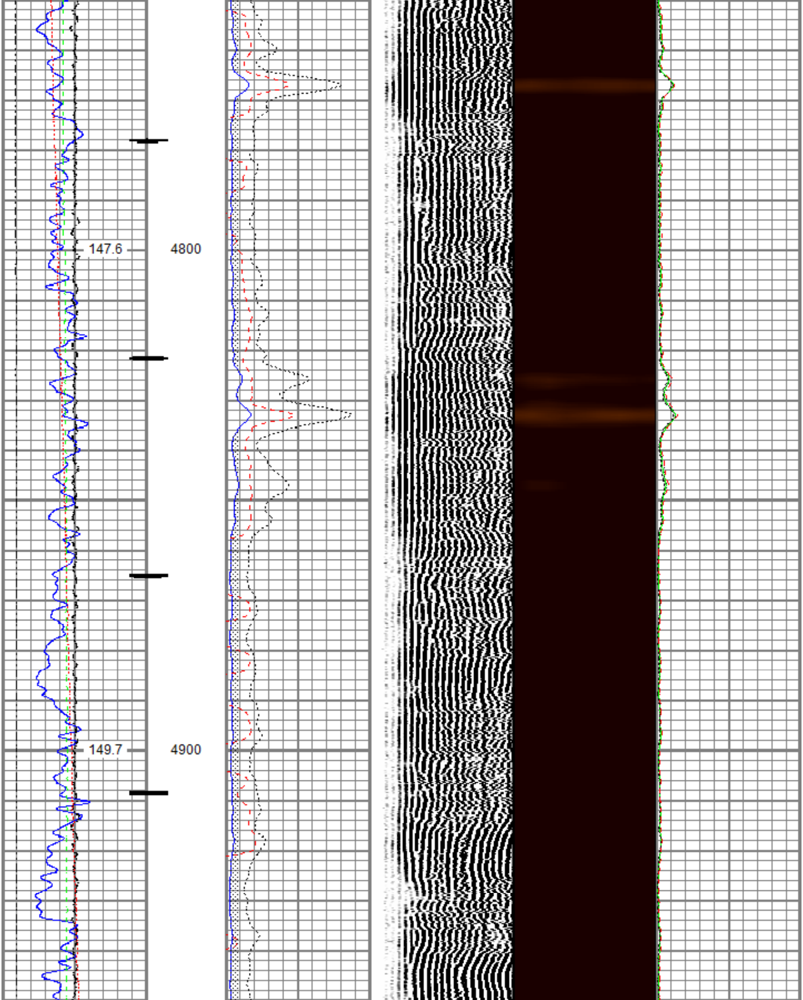
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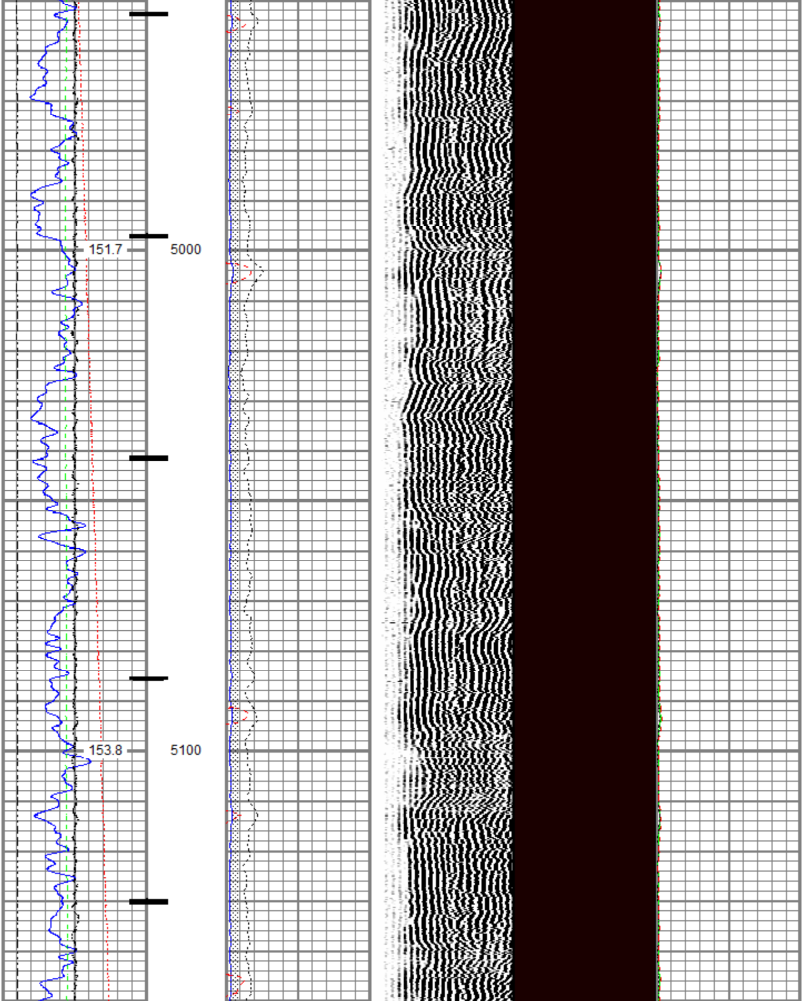
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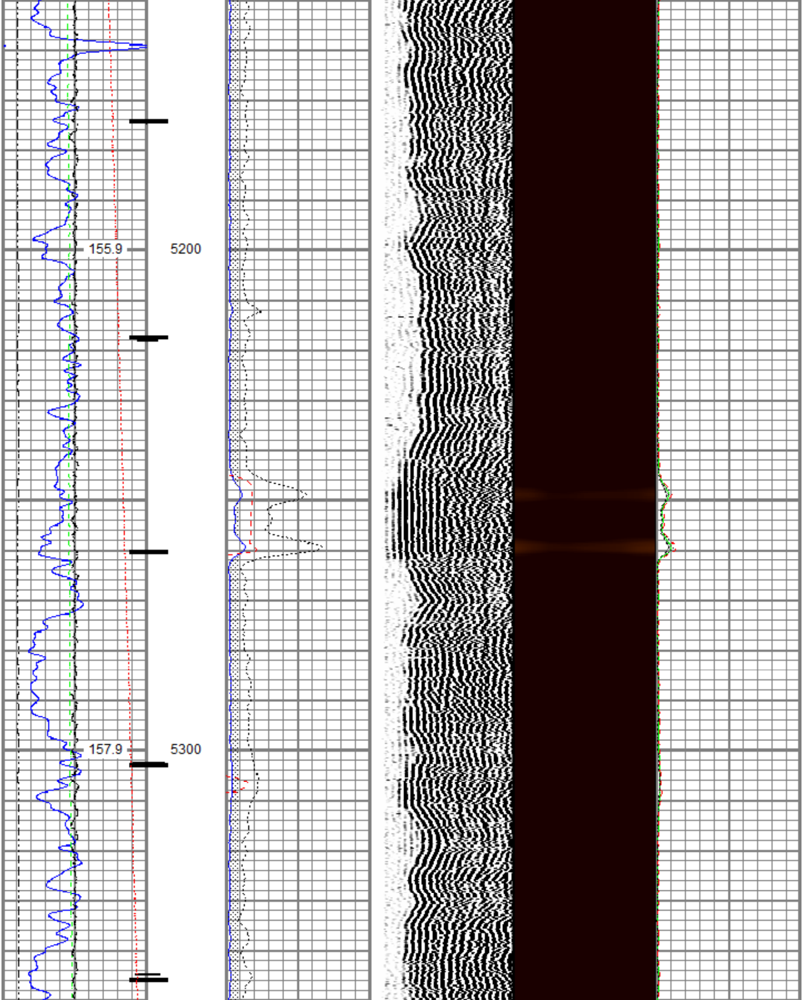
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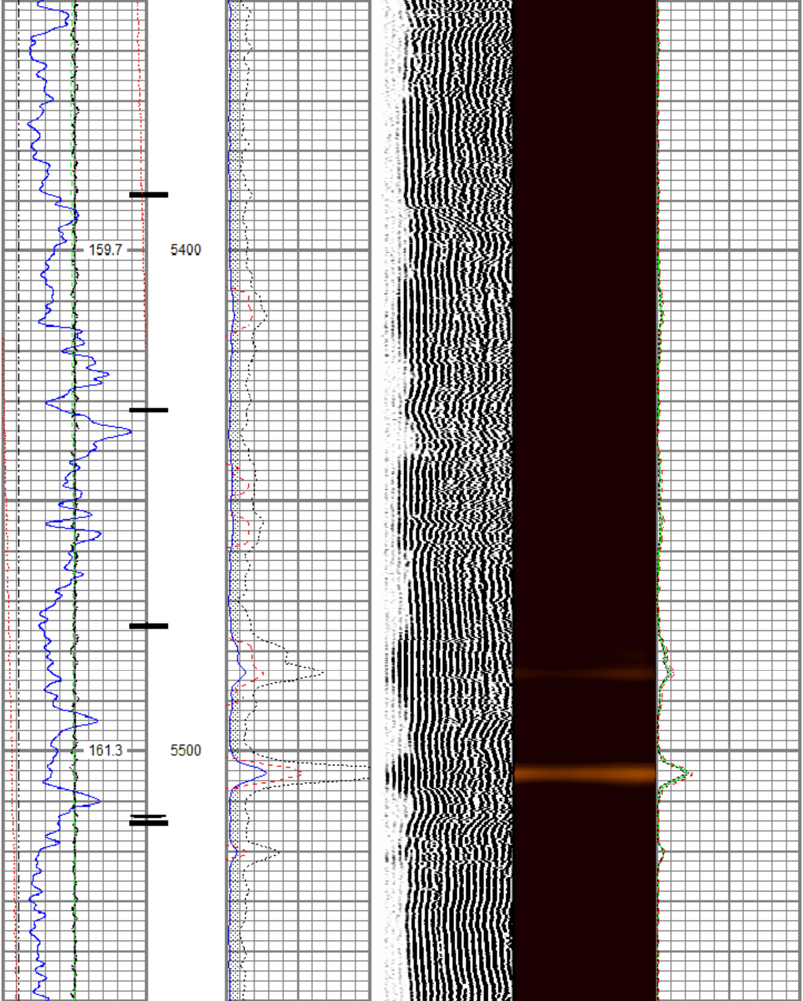
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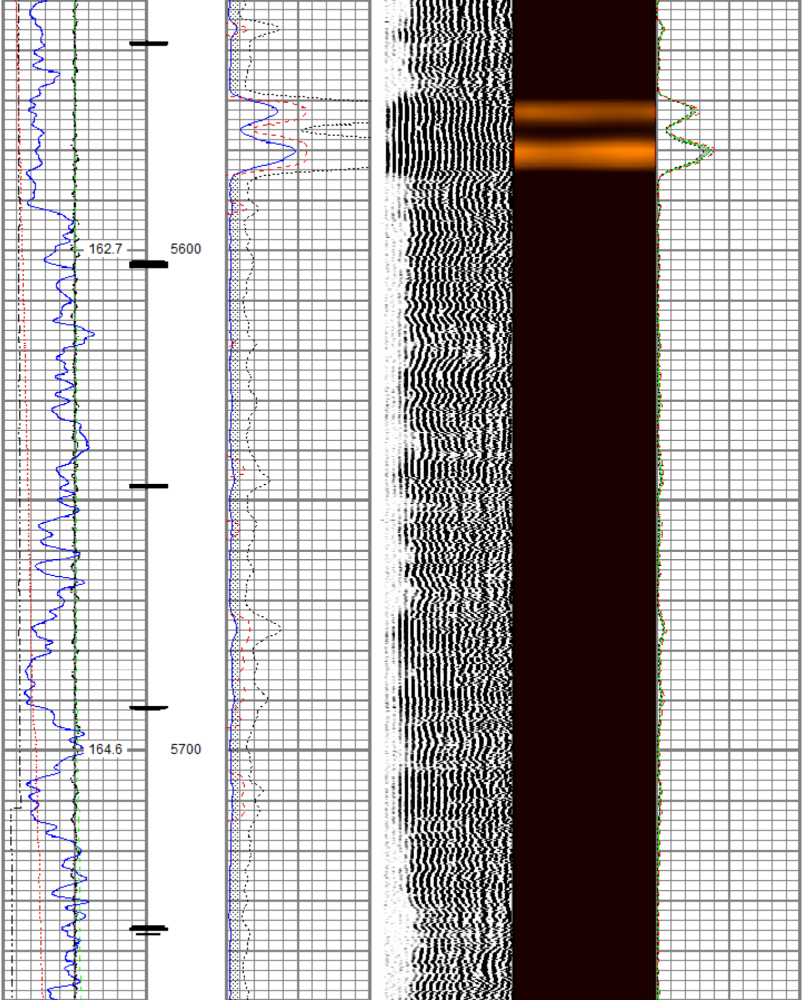
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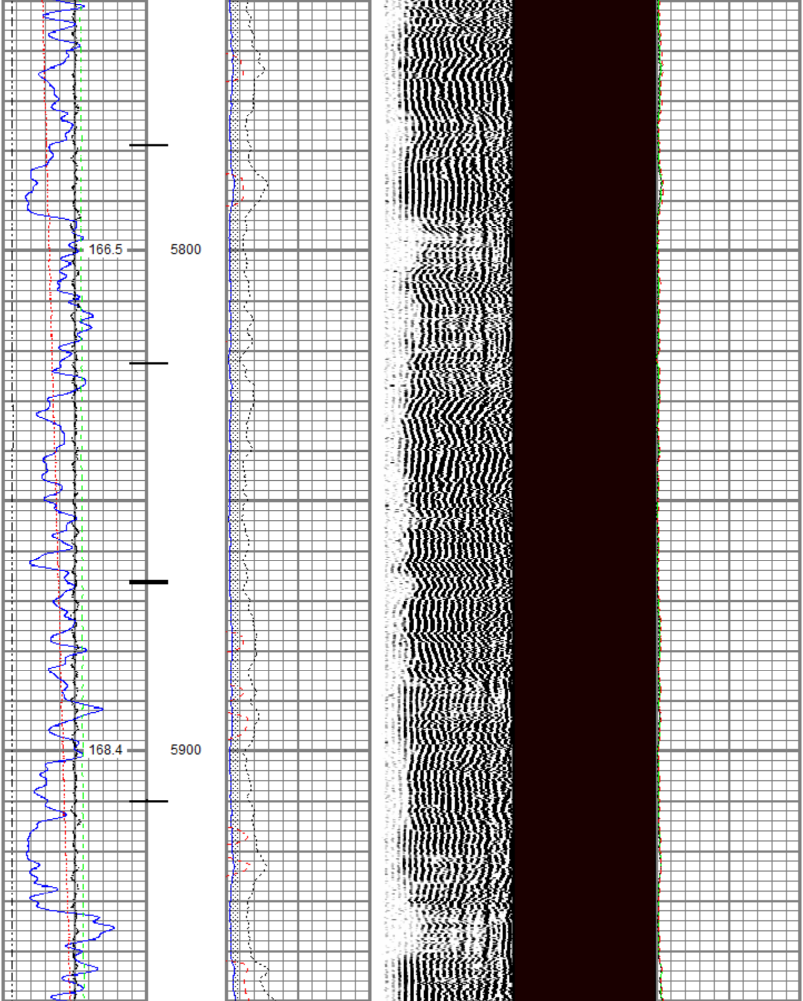
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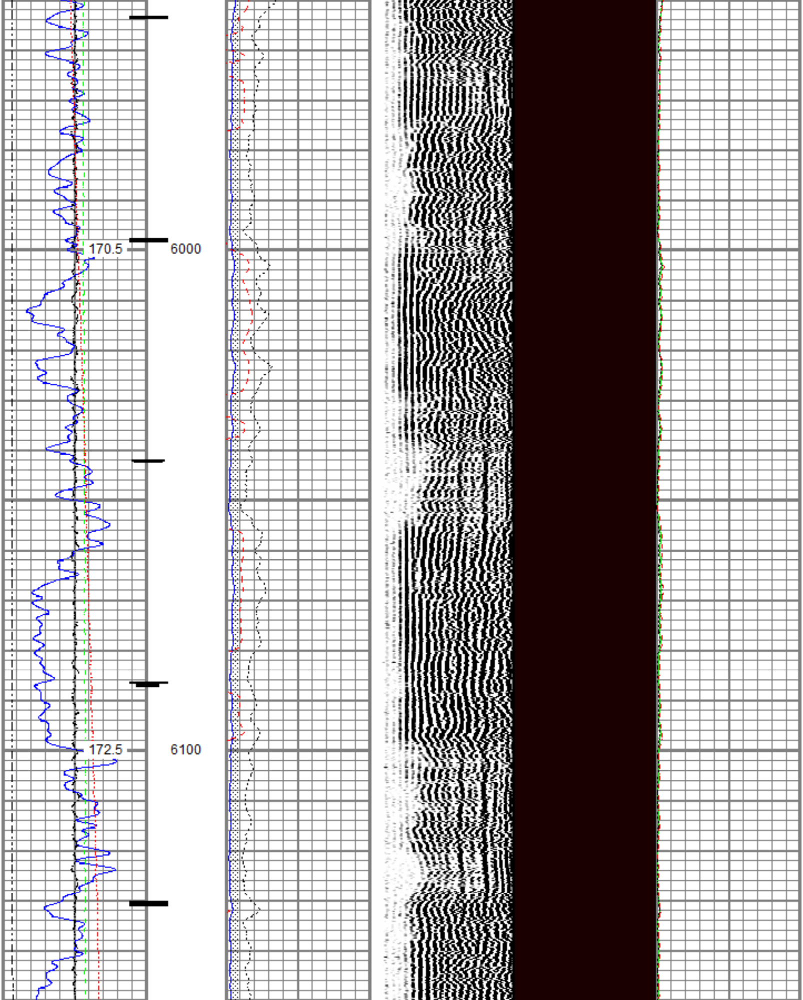
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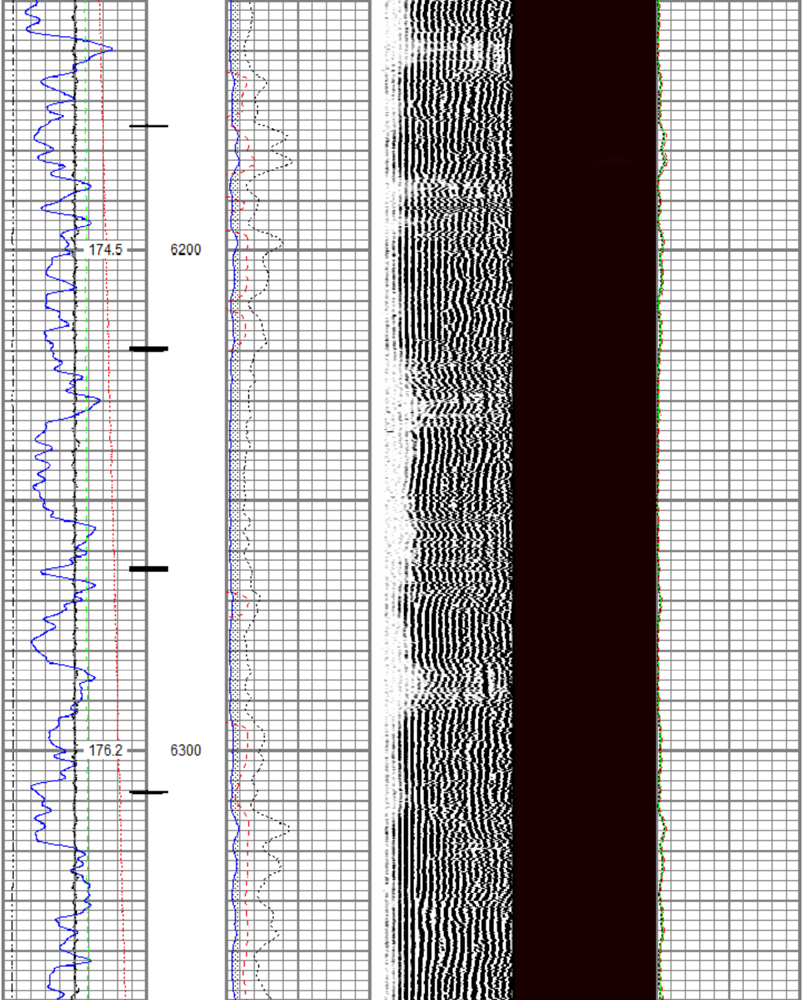
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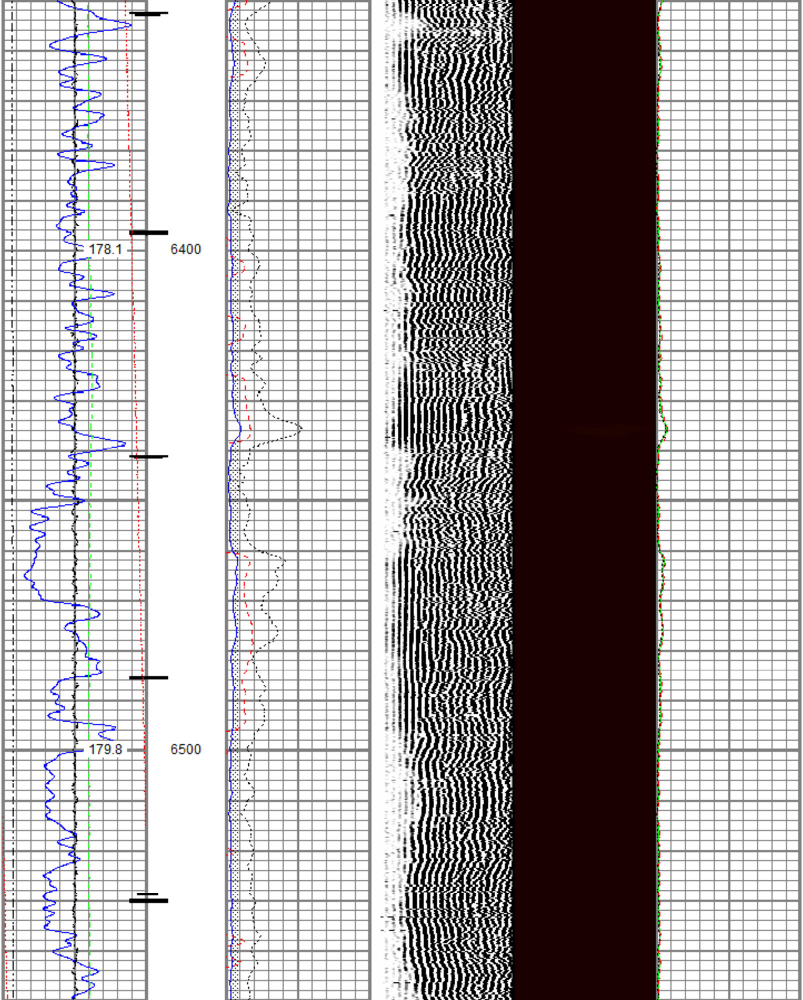
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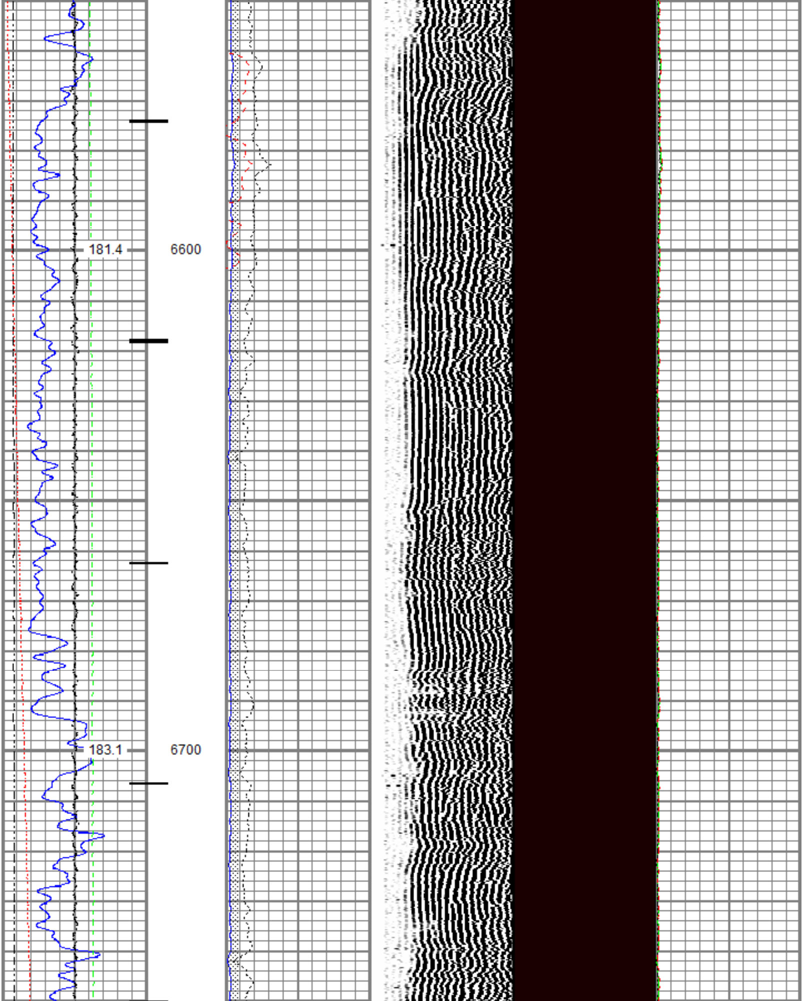
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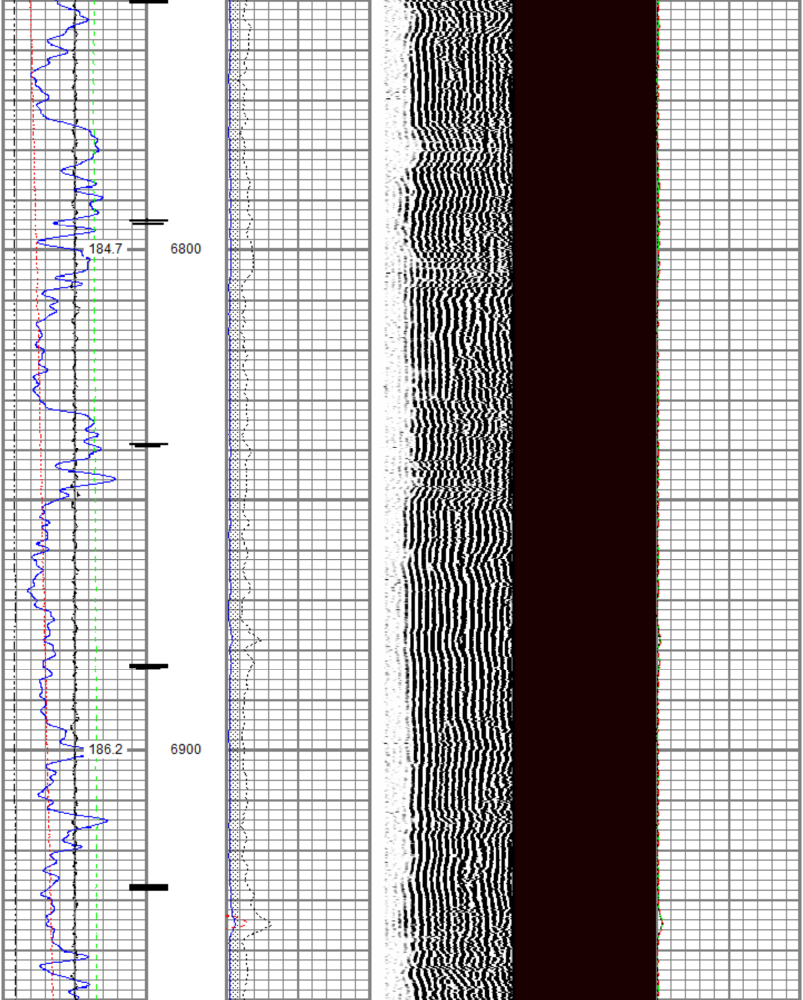
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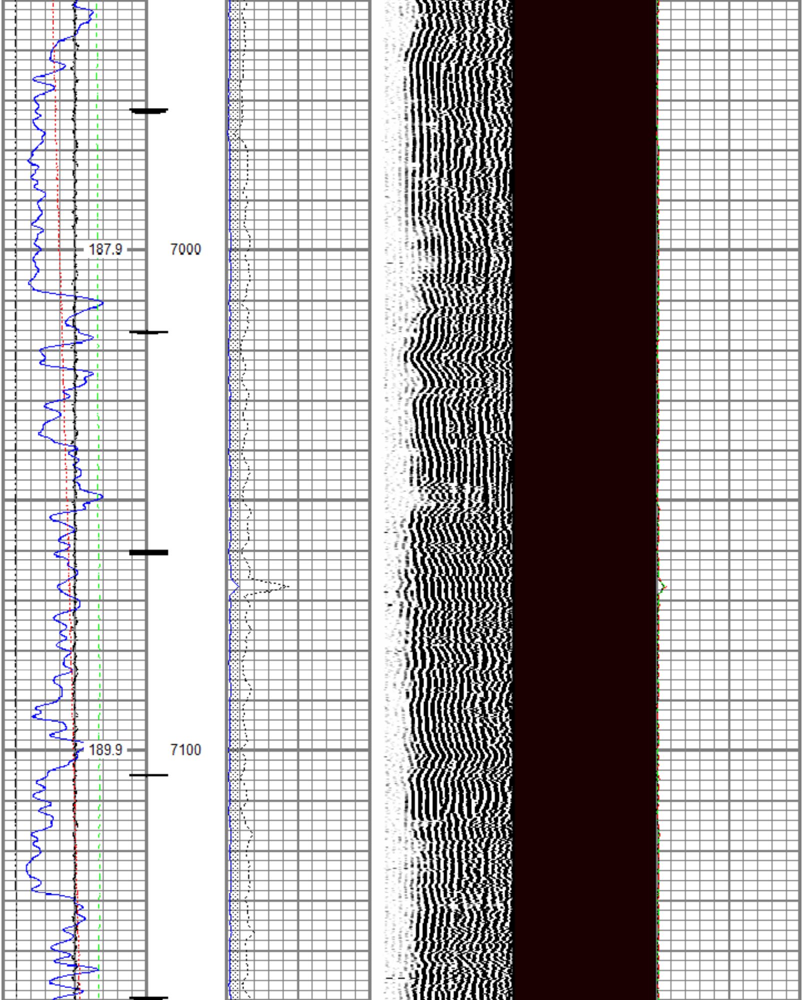
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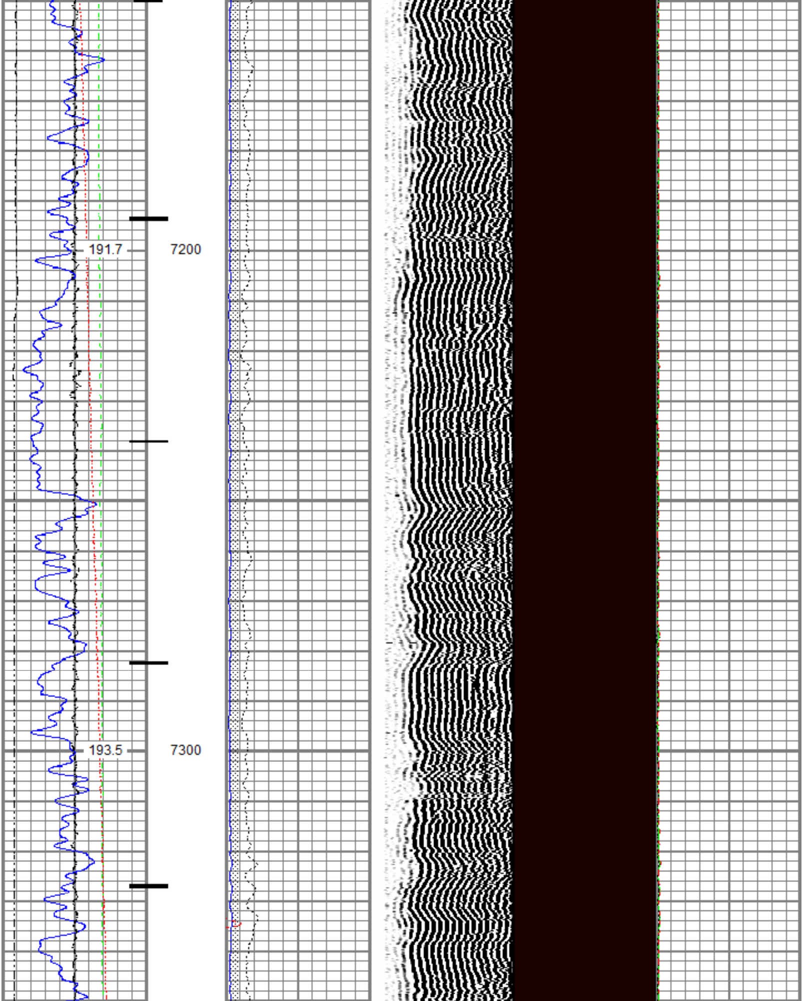
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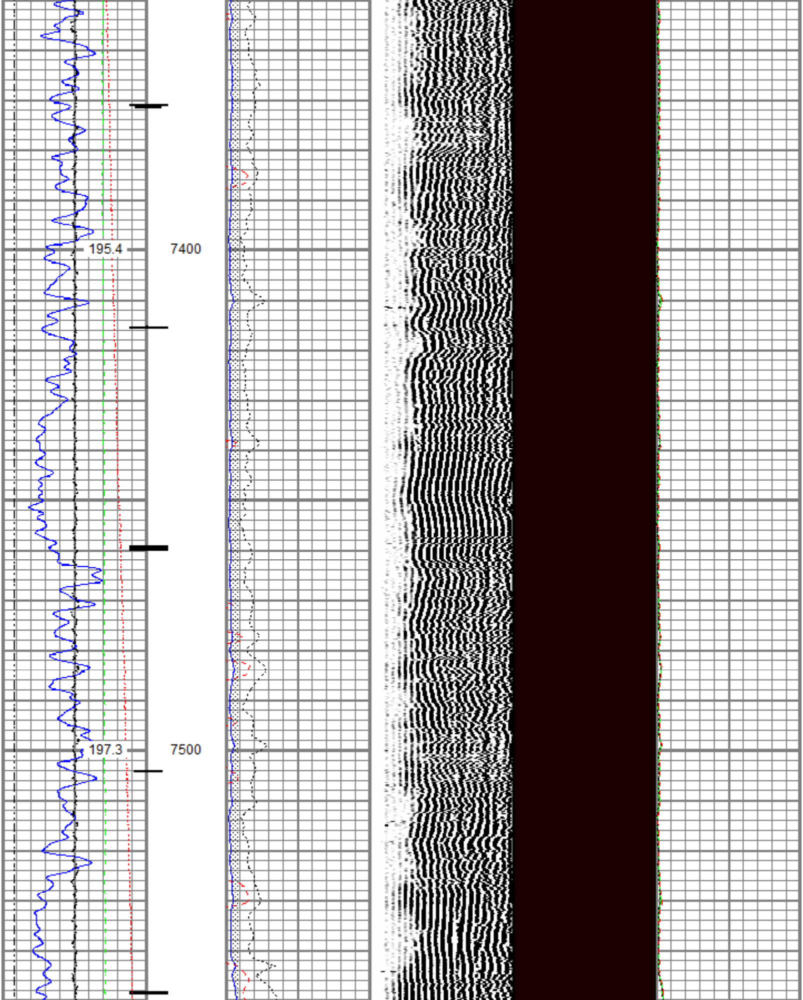
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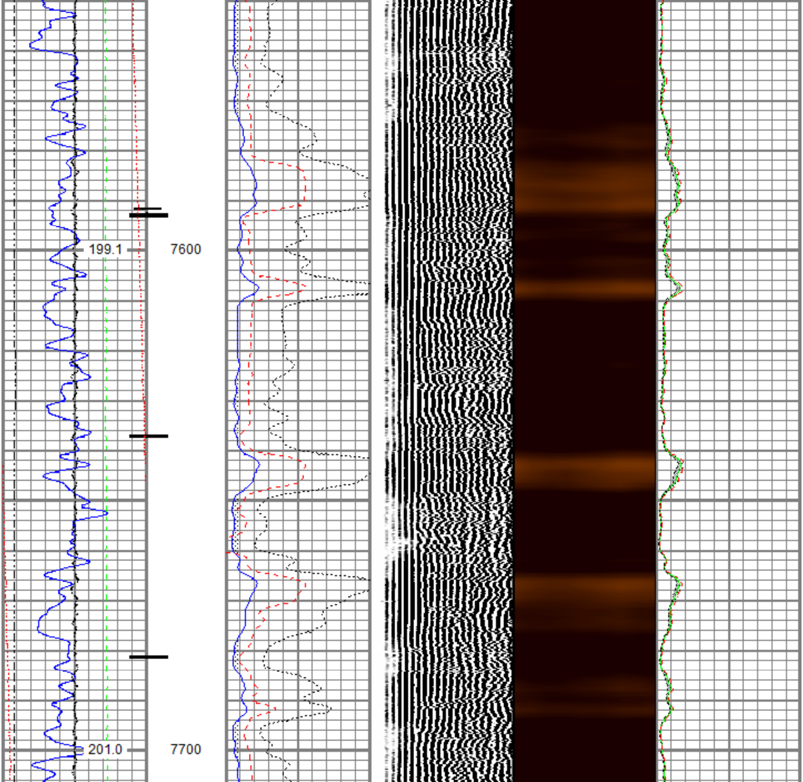
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Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 150
-150 (ft/min) 150	3' Travel Time			Maximum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

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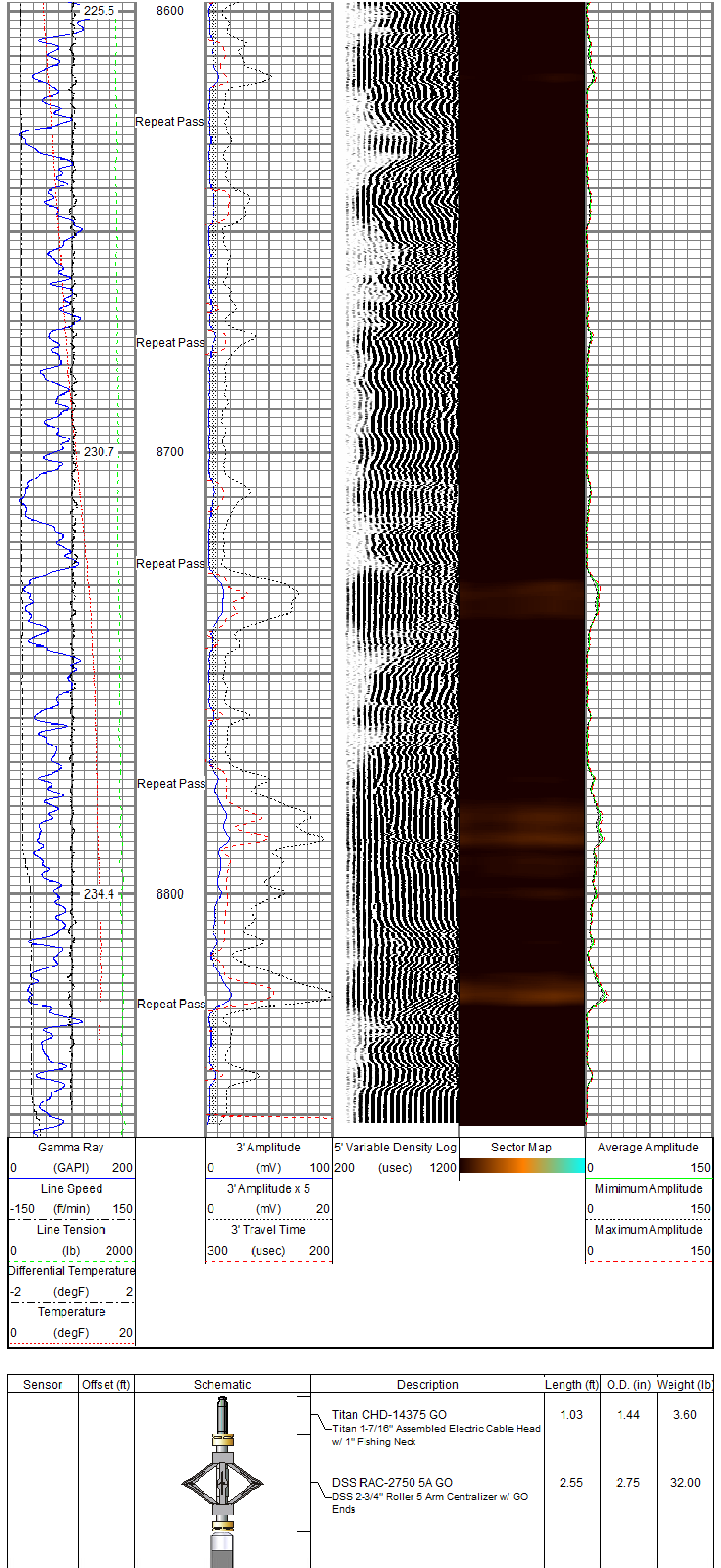
Repeat Pass

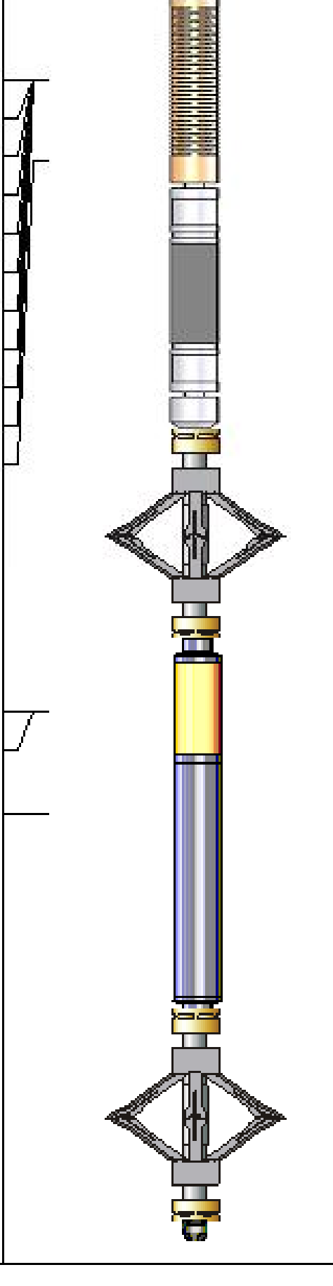
Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 612-26\tep_federal pa 612-26_rbl_09-02-18.db
Dataset Pathname	Repeat1.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 03 10:39:27 2018
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)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
TEMP	16.33					
WVFS8 WVFS7 WVFS6 WVFS5 WVFS4 WVFS3 WVFS2 WVFS1 WVFCAL WVF3FT WVF5FT	14.10 14.10 14.10 14.10 14.10 14.10 14.10 14.10 14.10 14.10 13.10		Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL$2 CCL$1	6.42 6.42					
GR	5.18		Probe GR-CCL-2750 GOB (FW1307-038) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined	4.51	2.75	55.00
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
			GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset:	tep_federal pa 612-26_rbl_09-02-18.db: field/well/run1/main.1
Total length:	22.82 ft
Total weight:	260.60 lb
O.D.:	2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\federal pa 612-26\tep_federal pa 612-26_rbl_09-02-18.db
Dataset Pathname	main.1
Dataset Creation	Mon Sep 03 10:29:45 2018

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:44:12 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	113.2	cps
Calibrator Reading:	1022.4	cps
Sensitivity:	0.7007	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	32.100	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.014	0.770	0.800	81.196	102.512	2.229
CAL	-0.005	0.740				
5'	-0.007	0.718	0.800	81.196	110.926	1.572
SUM						
S1	-0.007	0.905	0.000	100.000	109.695	0.775
S2	-0.011	0.879	0.000	100.000	112.373	1.232
S3	-0.013	0.866	0.000	100.000	113.816	1.455
S4	-0.016	0.825	0.000	100.000	118.957	1.883
S5	-0.015	0.768	0.000	100.000	127.739	1.907
S6	-0.012	0.740	0.000	100.000	133.049	1.561
S7	-0.014	0.766	0.000	100.000	128.143	1.780
S8	-0.009	0.847	0.000	100.000	116.872	1.065

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.005	0.740	1.000	0.000

Air Zero Calibration, performed Sun Sep 02 08:36:44 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.002	0.000	-0.000
5'	0.008	0.000	-0.001
SUM			
S1	-0.002	0.000	0.001
S2	-0.002	0.000	0.000
S3	-0.003	0.000	0.001
S4	-0.002	0.000	-0.000
S5	-0.003	0.000	-0.000
S6	-0.002	0.000	0.000
S7	-0.002	0.000	-0.000
S8	-0.002	0.000	-0.000

Temperature Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Performed:	Sun Nov 12 13:24:58 2017	
	Reference	Reading
Low Reference:	100.00 degF	107.47 degF
High Reference:	350.00 degF	404.08 degF
Gain:	0.84	
Offset:	9.42	
Delta Spacing	1	

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Company	TEP Rocky Mountain LLC
Well	Federal PA 612-26
Field	Parachute
County	Garfield
State	Colorado