RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 522-26
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 522-26
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23727
Other Services
PN
SEC 26 TWP 6S RGE 95W

			Elevation
Permanent Datum	Ground Level	Elevation 5636.9'	K.B. 5660.9'
Log Measured From	Kelly Bushing	24 FT	D.F. 5659.9'
Drilling Measured From	Kelly Bushing		G.L. 5636.9'

Date	02-SEP-2018
Run Number	One
Depth Driller	8473 FT
Depth Logger	8394 FT
Bottom Logged Interval	8380 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	238°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	15:30
Equipment Number	HD 331
Location	Grand Junction, CO
Recorded By	M. Kochevar
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	J-55	Surface	1143 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8431 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 4226 FT - 4240 FT
Log ran from 8380 FT to Surface
Recorded with 0 PSI Surface Induced Pressure
Sensors 4 and 5 were interpolated with offset sensor data

Thank you for choosing Reliance Oilfield Services, LLC!!

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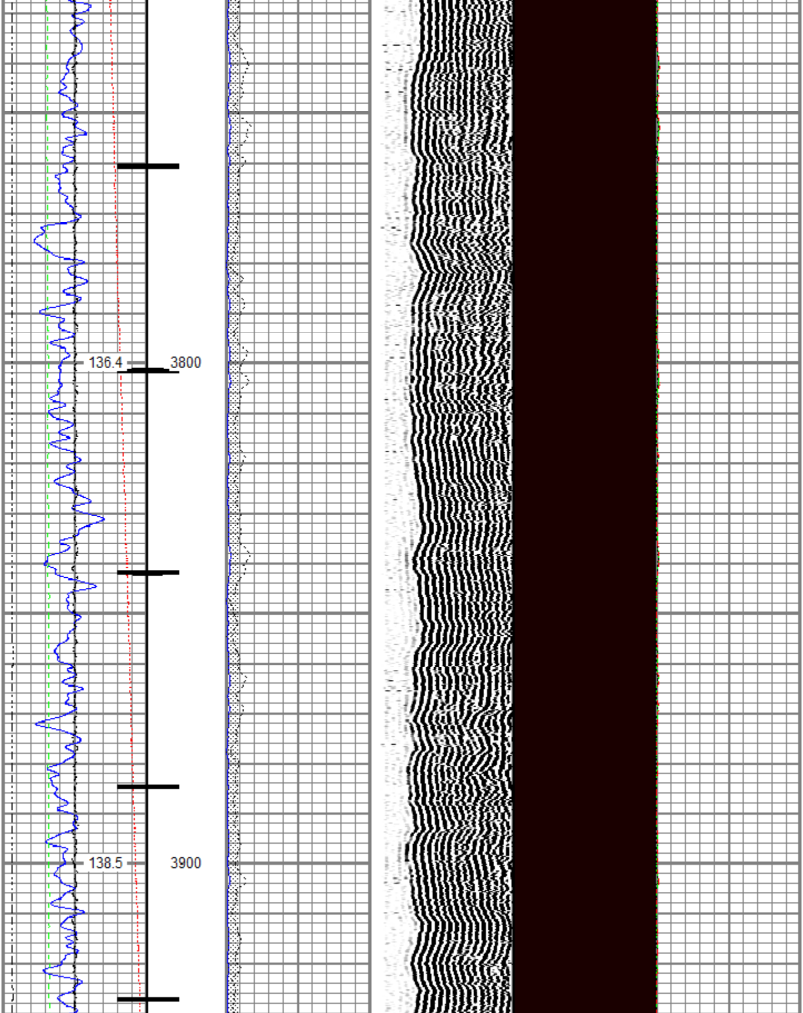
Main Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep_federal pa 522-26_rbl_09-02-18\processed_tep_federal pa 522-26_rbl_09-02-18.db
Dataset Pathname	main.10
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Sep 04 10:58:30 2018
Charted by	Depth in Feet scaled 1:240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138.5
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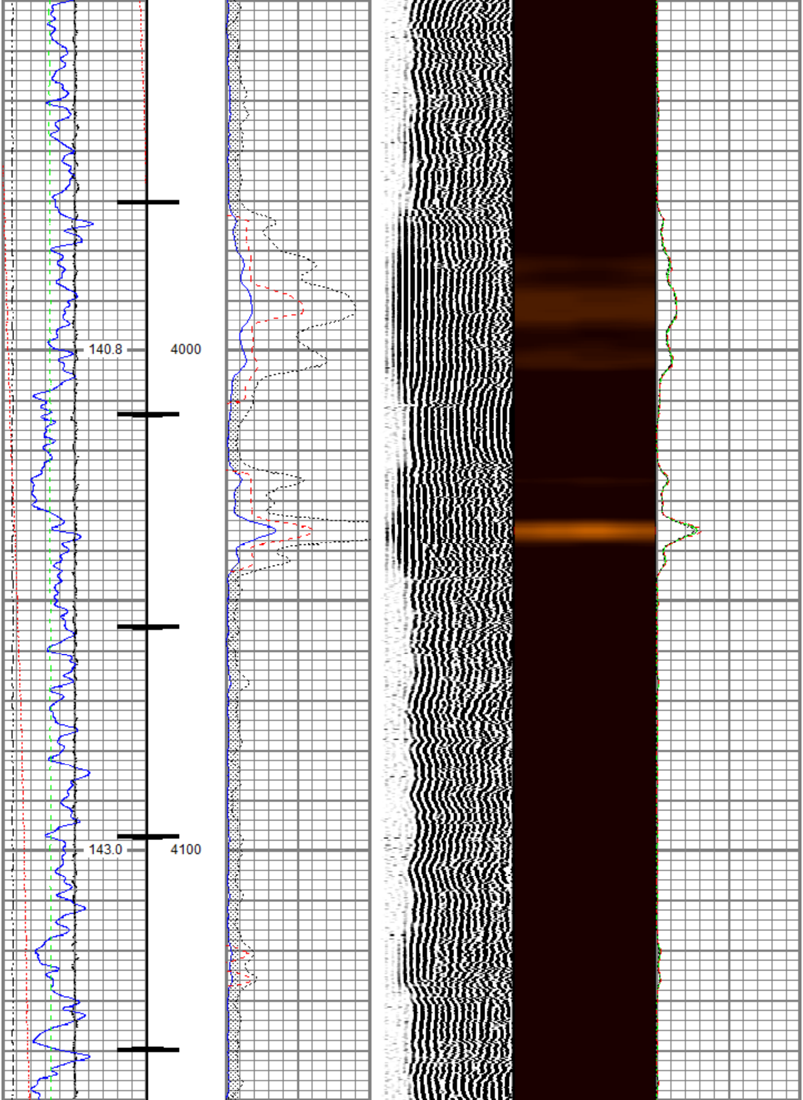
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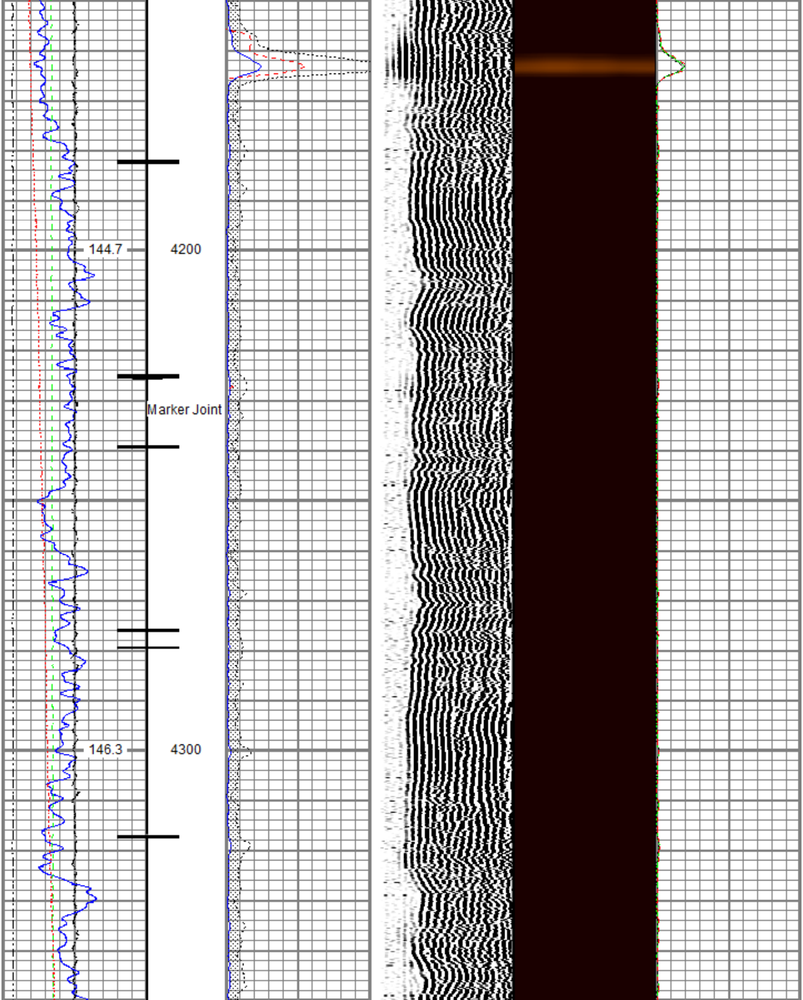
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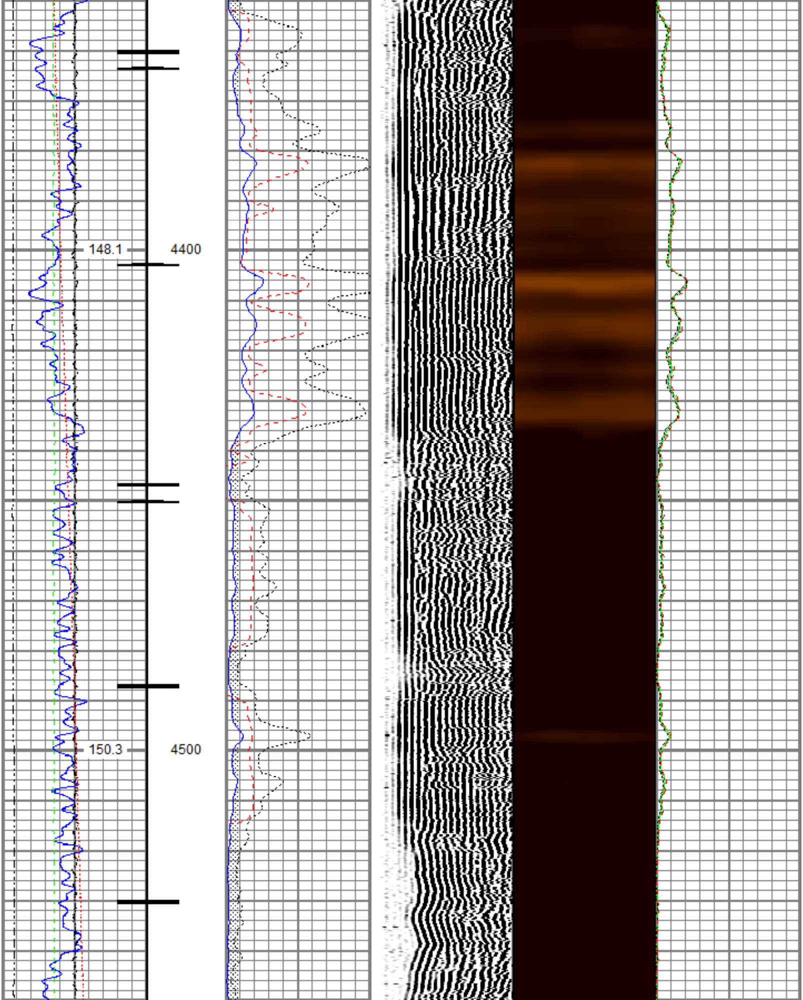
4200
Marker Joint
146.3
4300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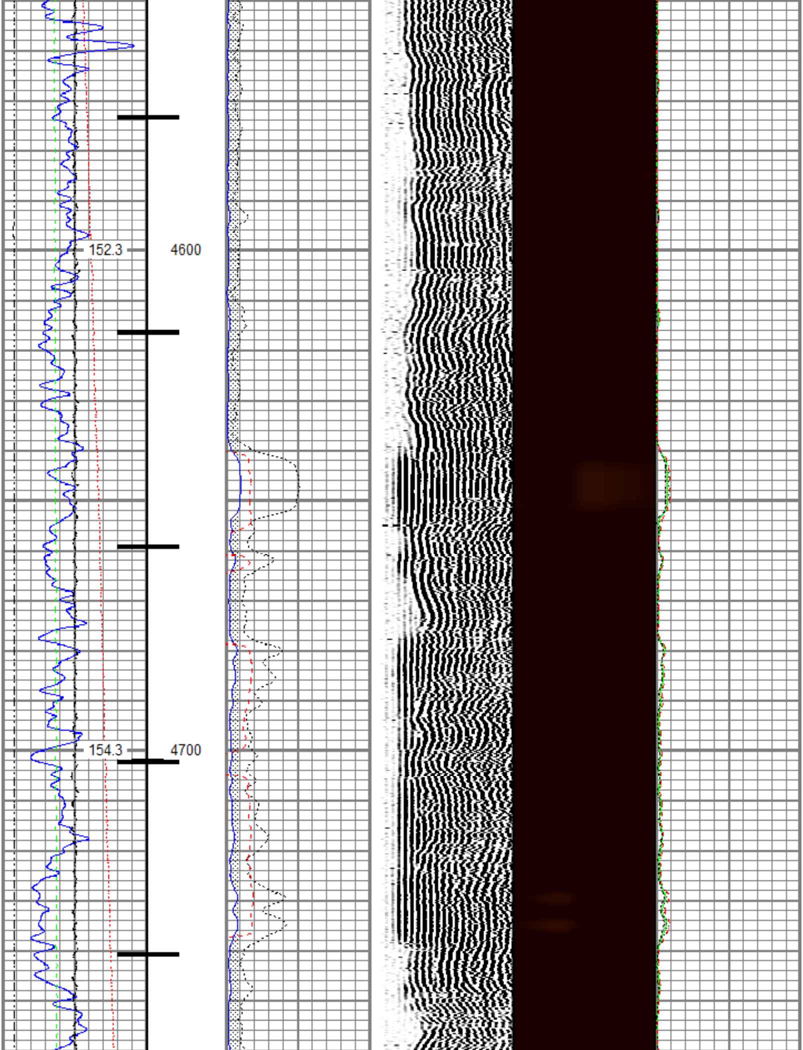
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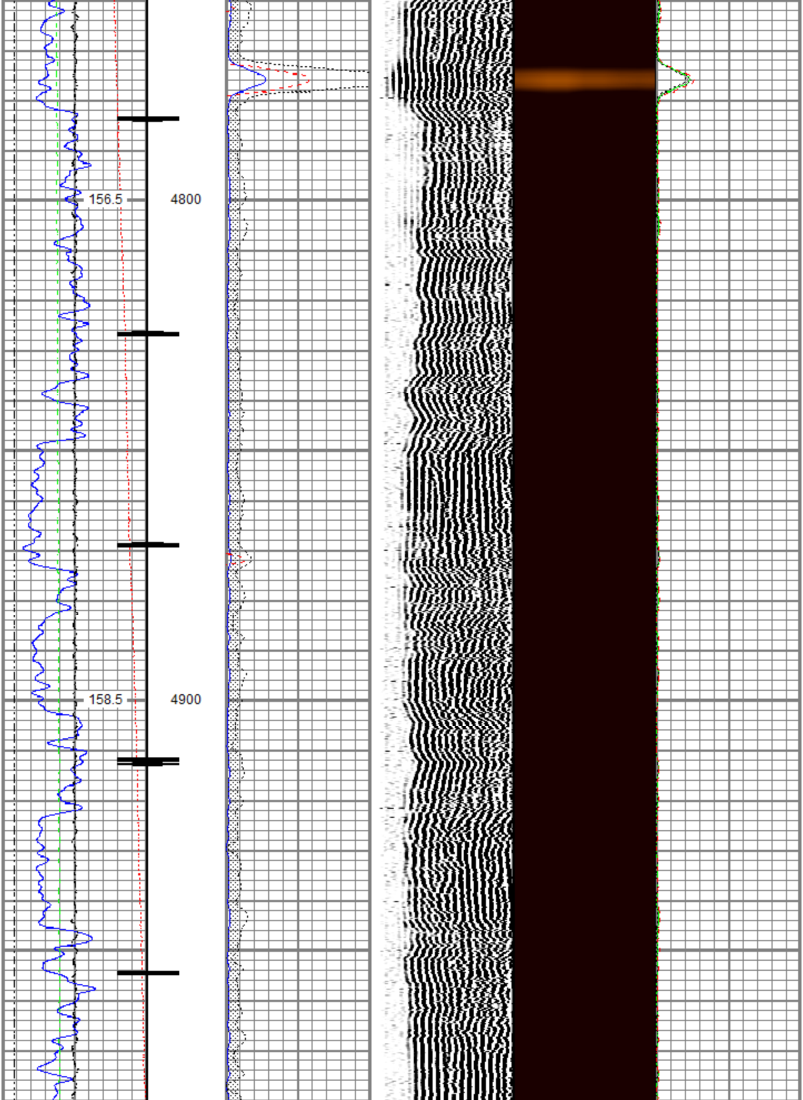
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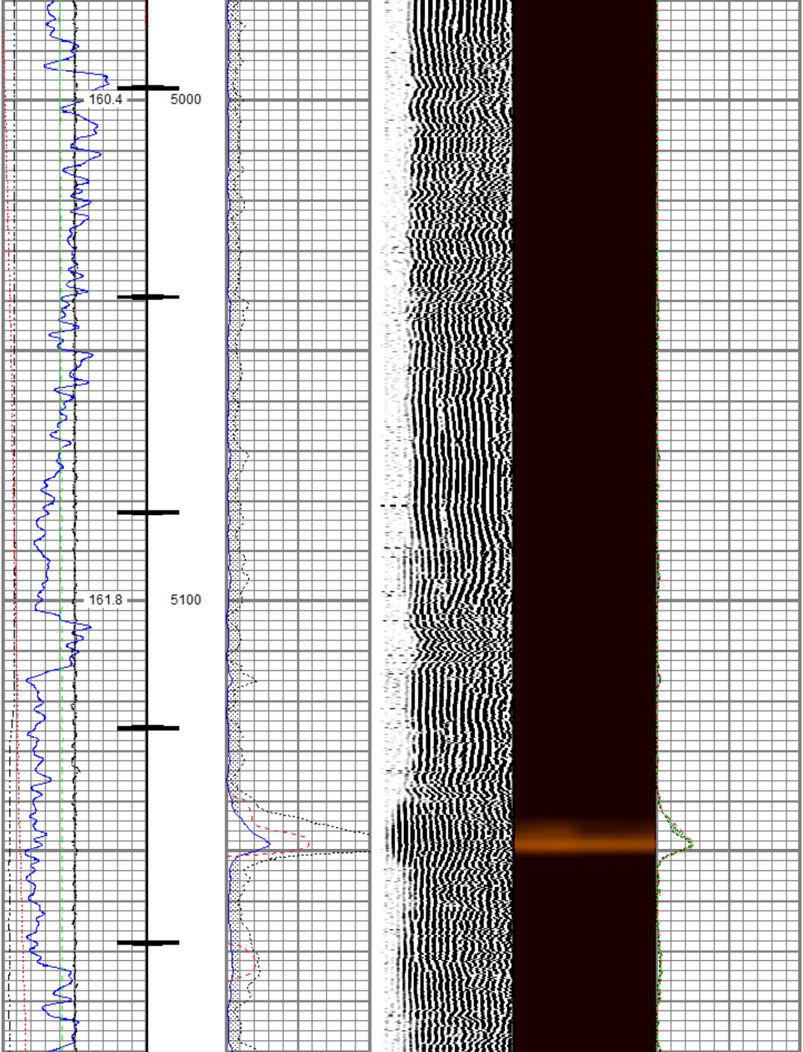
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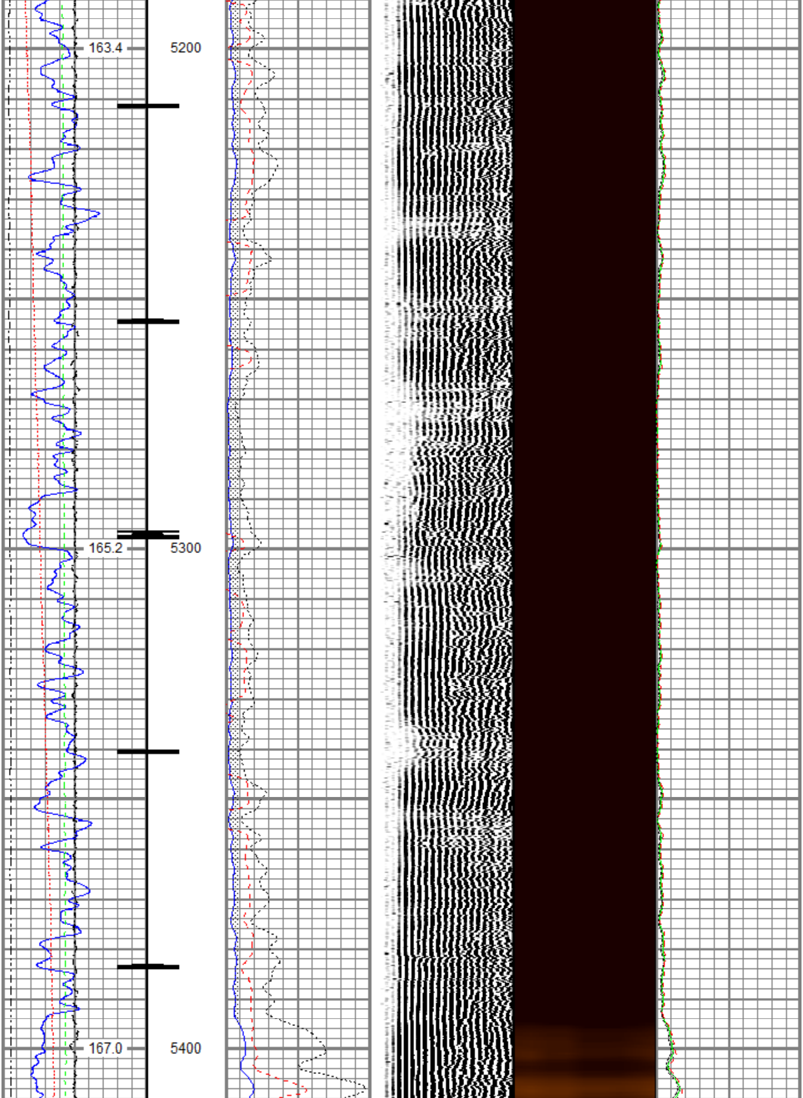
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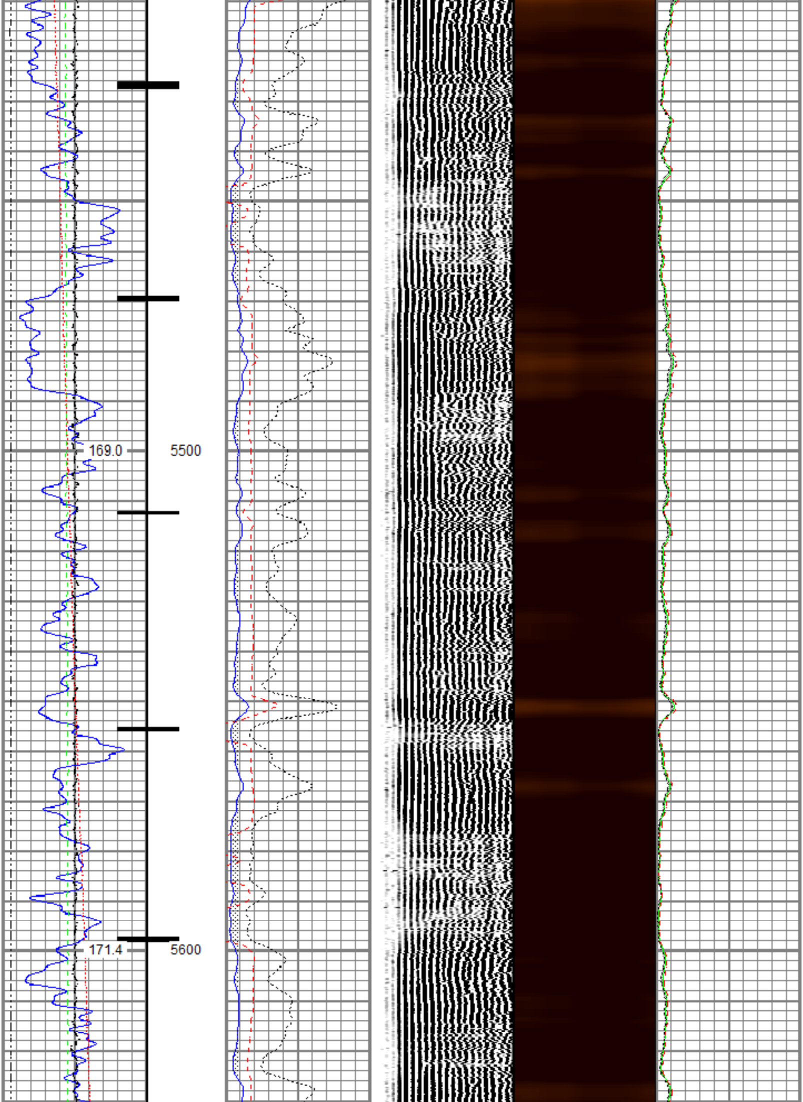
167.0
5400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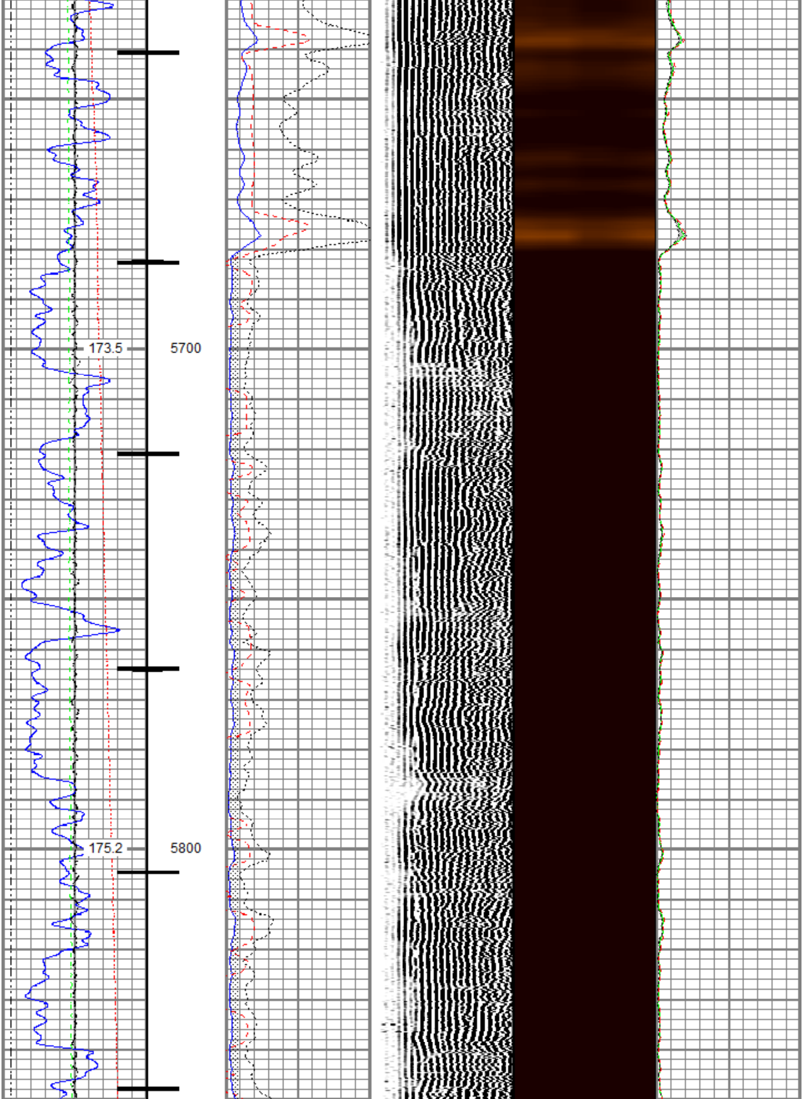
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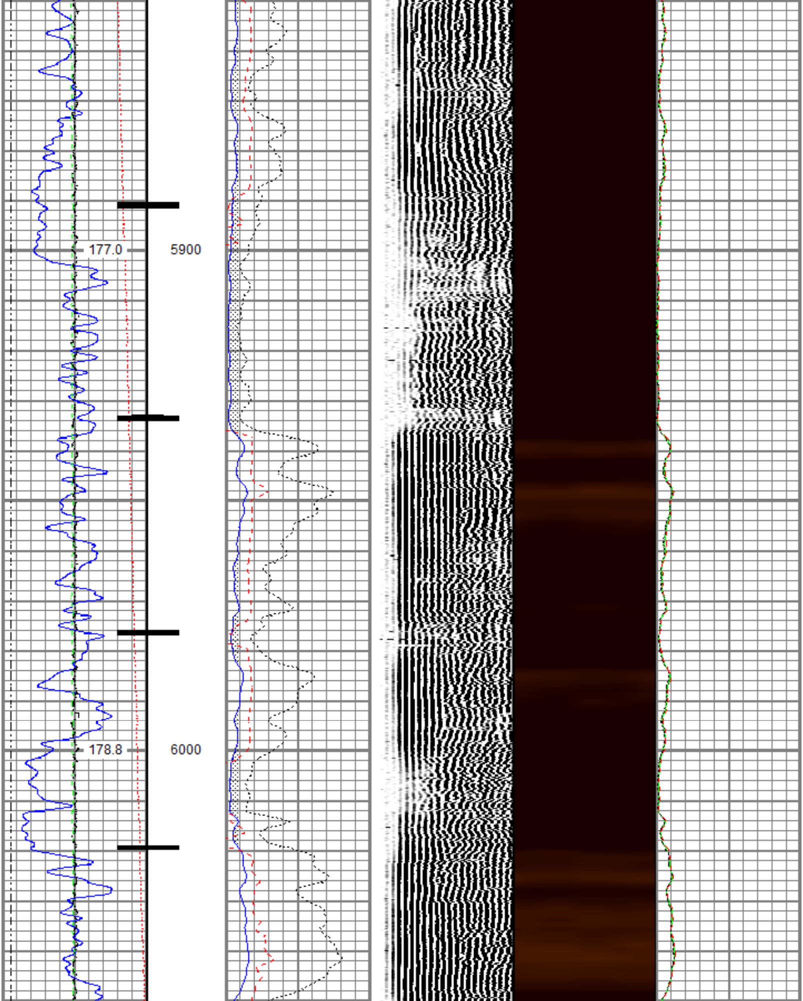
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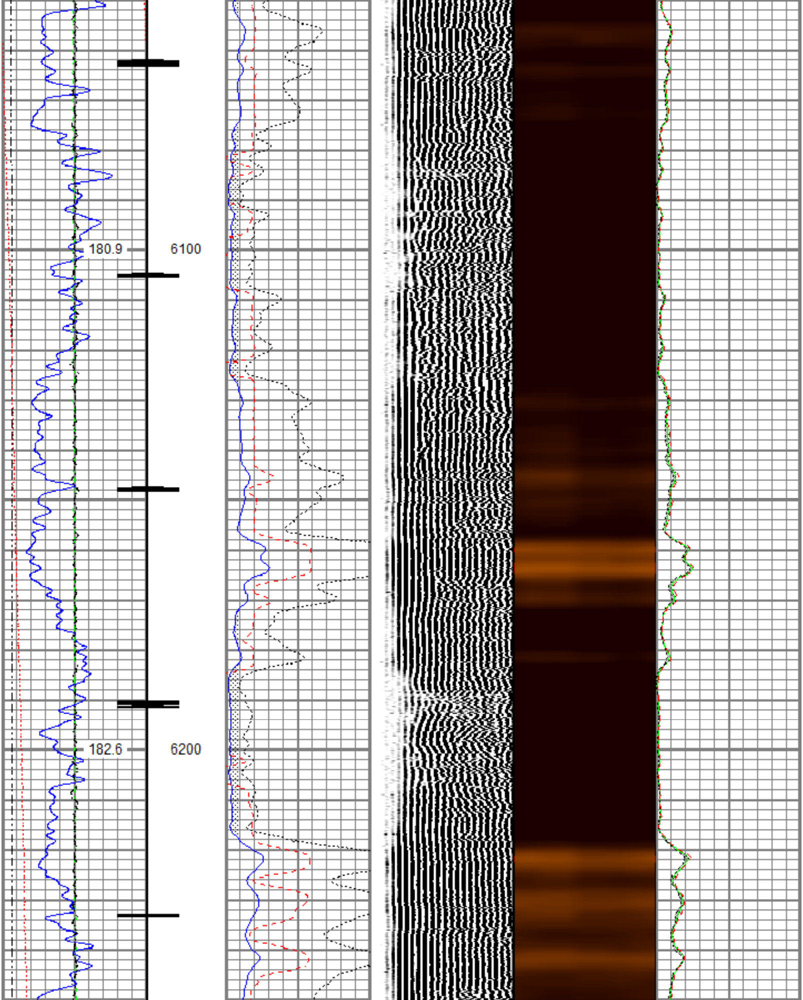
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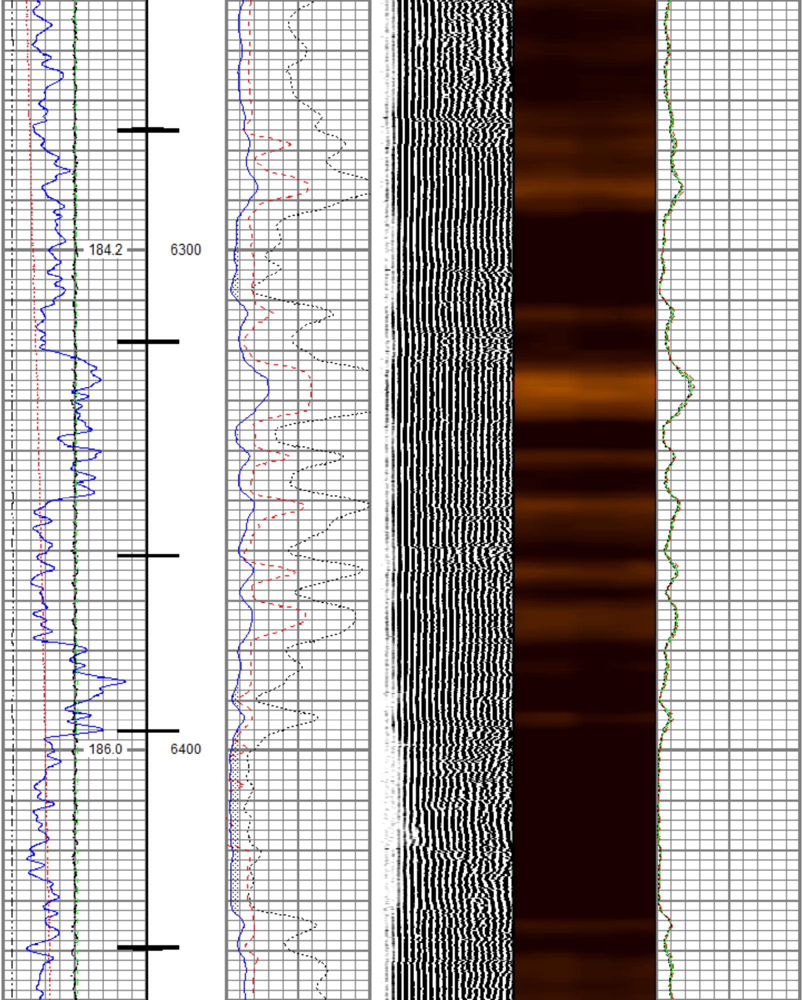
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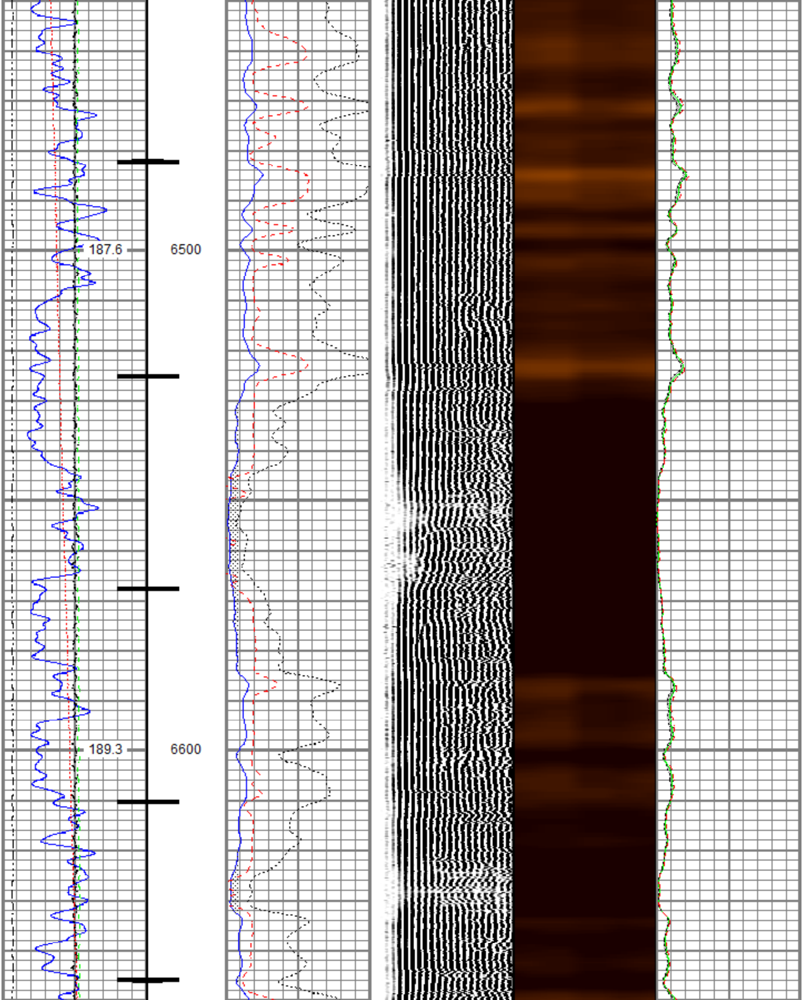
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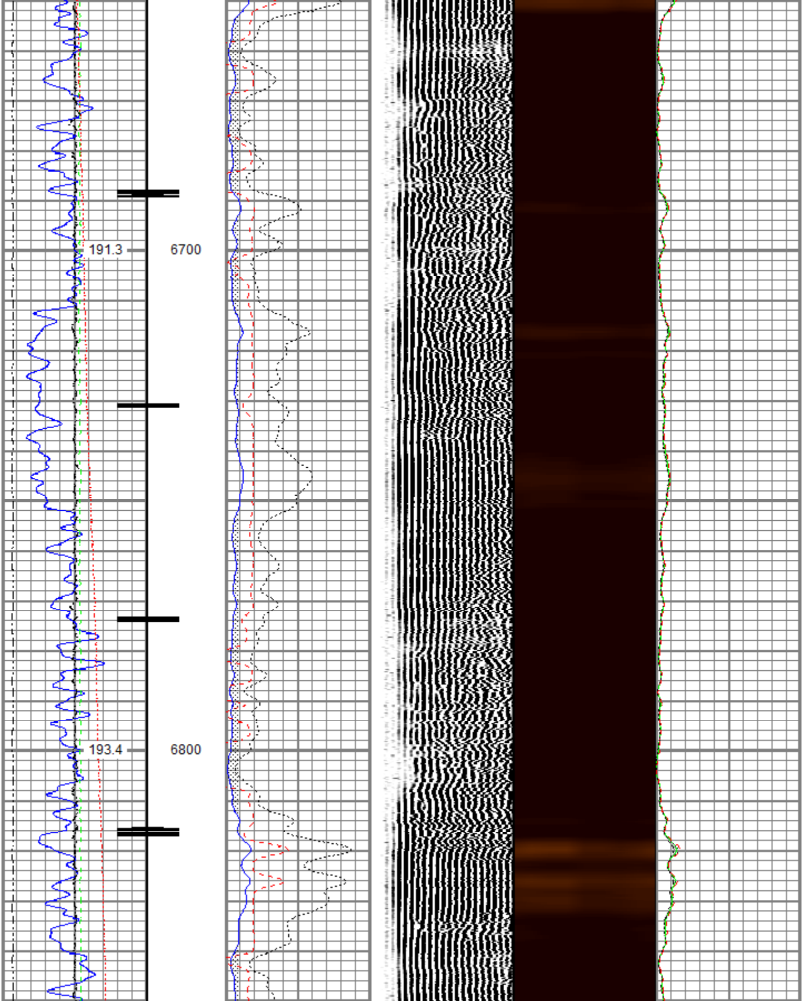
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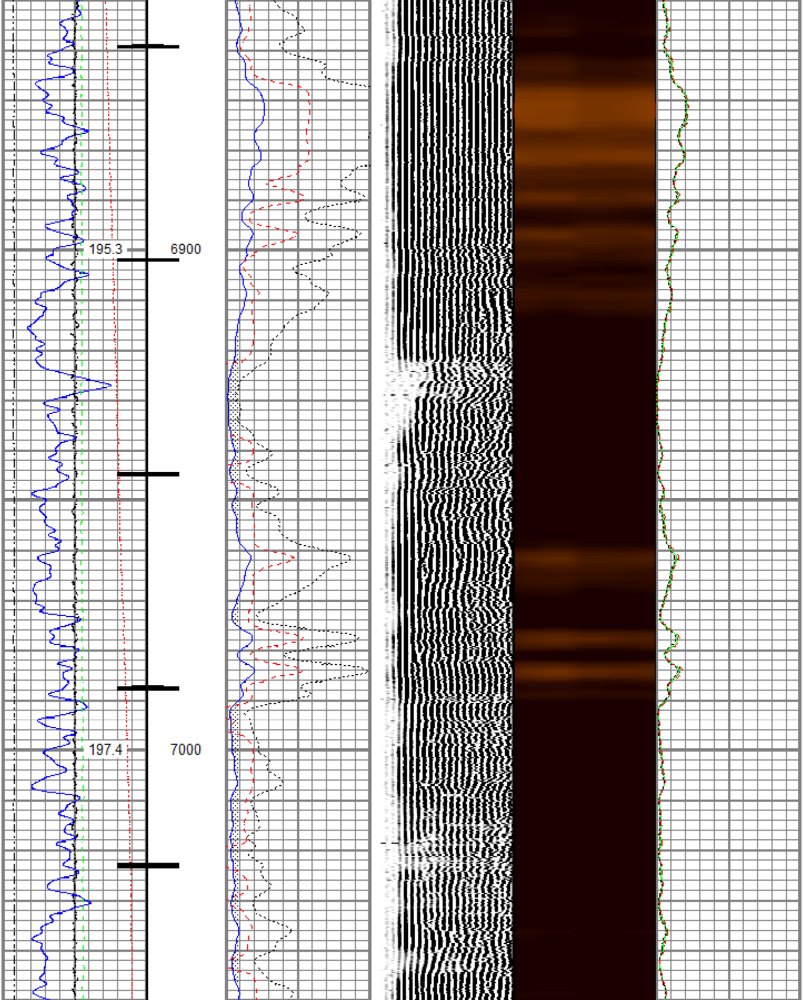
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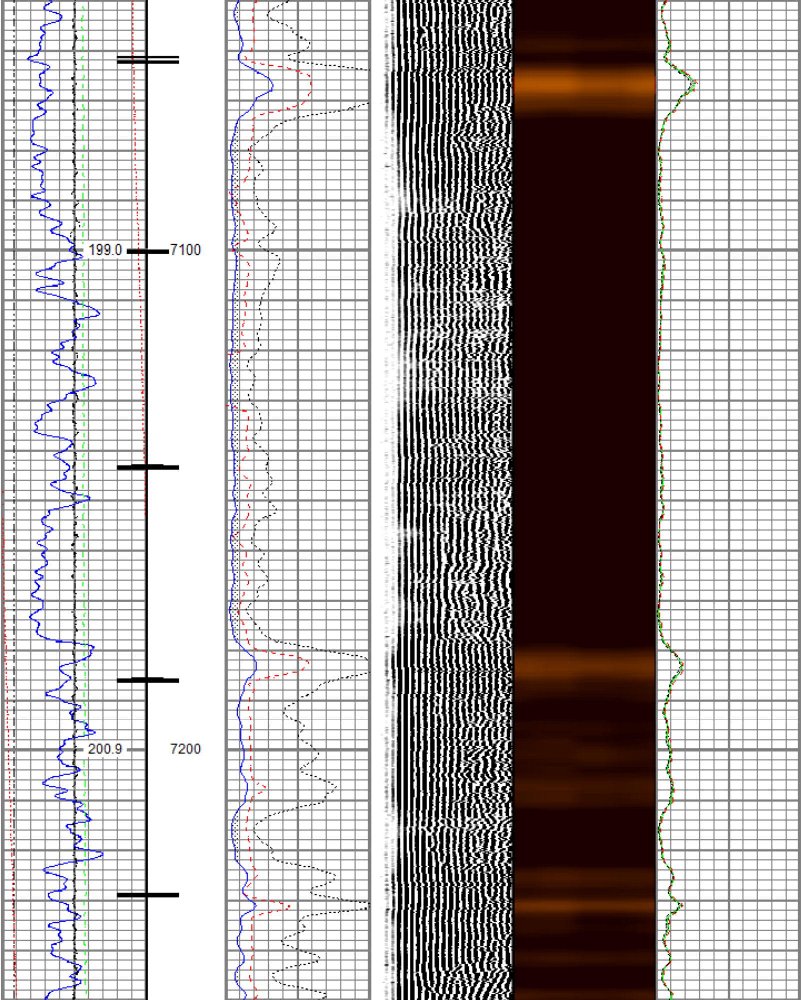
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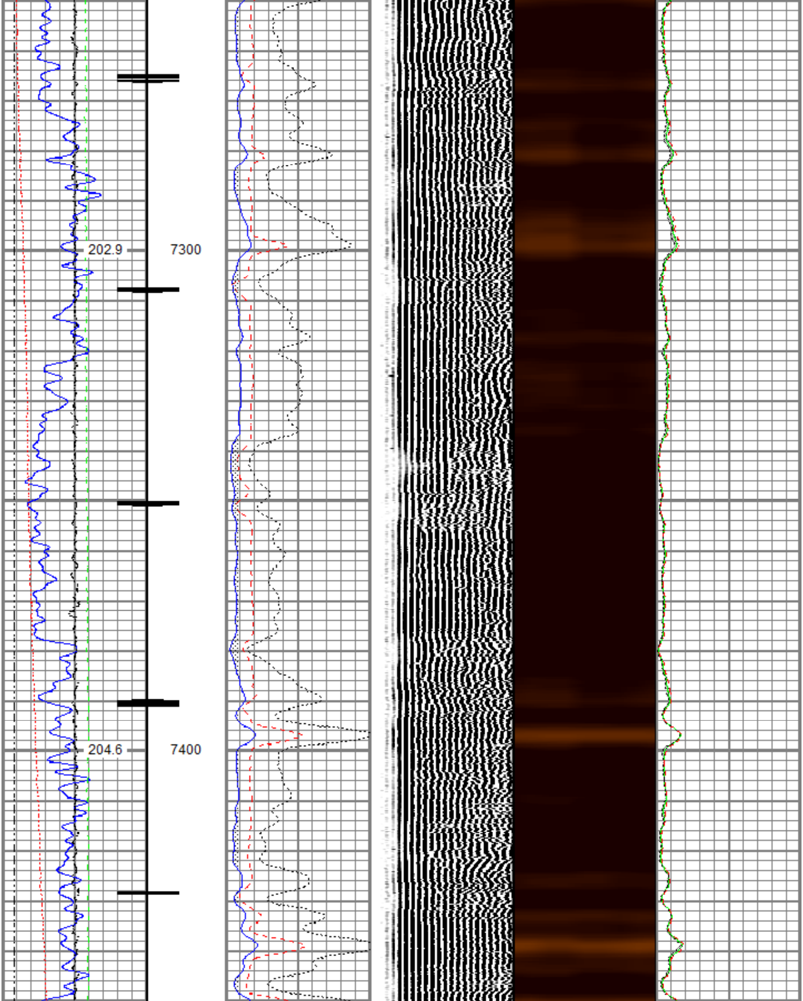
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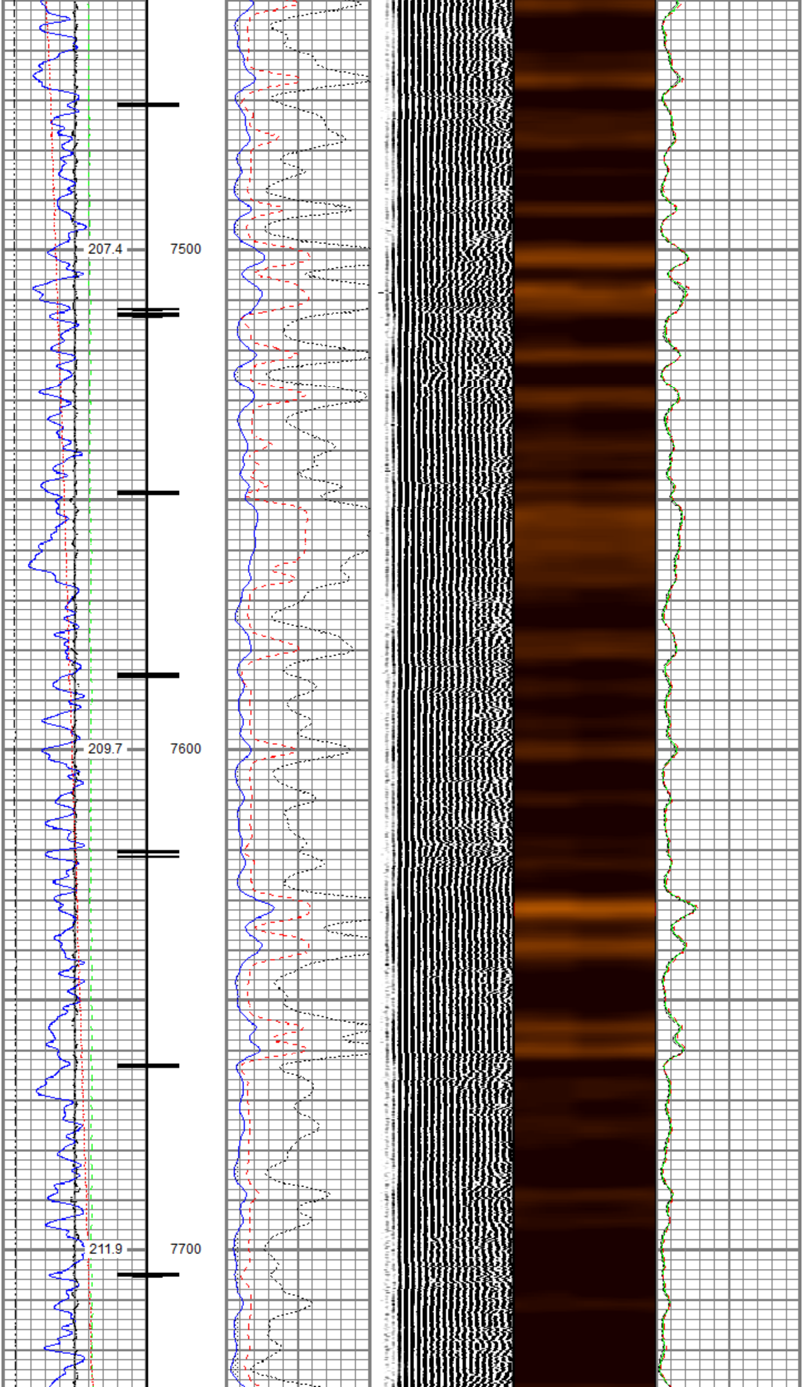
207.4
7500
209.7
7600
211.9
7700

Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map 10 110	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				
10 CCL 0				

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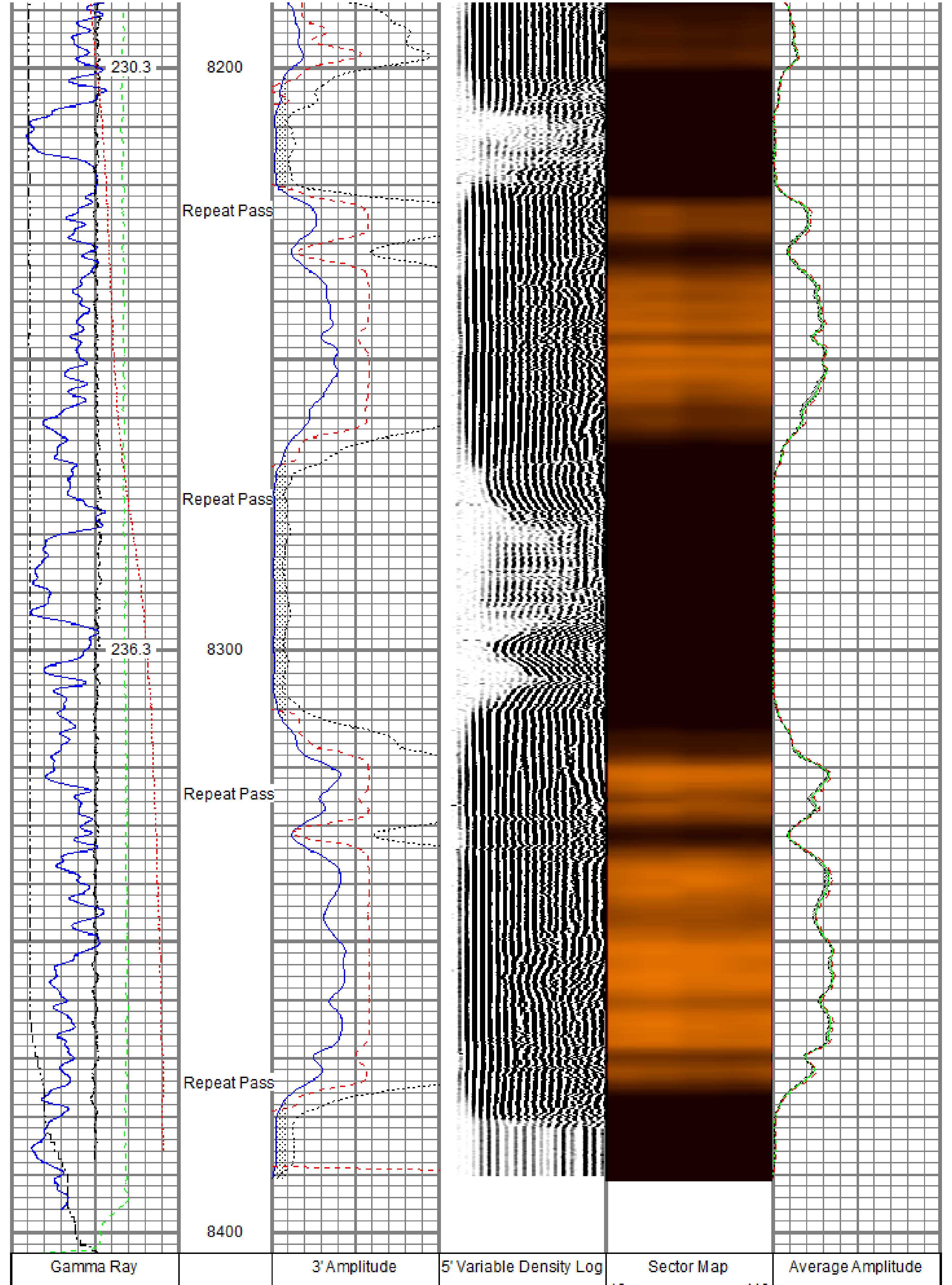
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File tep_federal pa 522-26_rbl_09-02-18\processed_tep_federal pa 522-26_rbl_09-02-18.db
Dataset Pathname repeat.6
Presentation Format ros_rbt004_tep
Dataset Creation Tue Sep 04 11:15:24 2018
Charted by Depth in Feet scaled 1:240

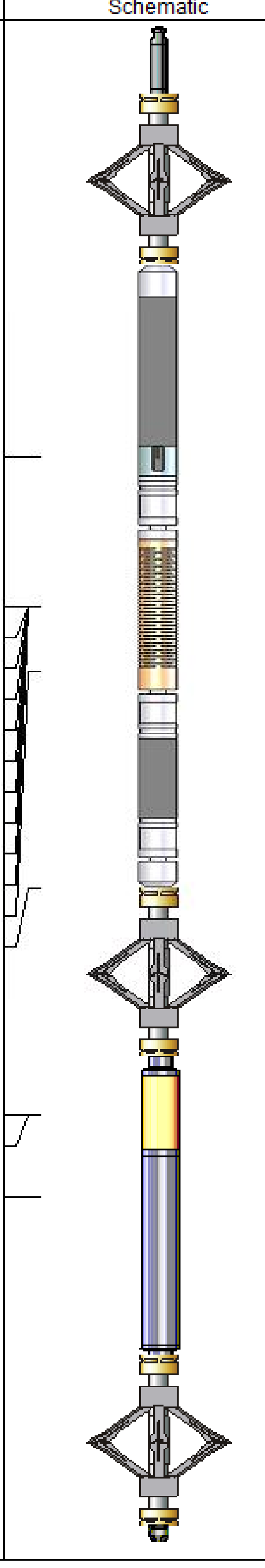
Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map 10 110	Average Amplitude 0 150
Line Speed -150 (ft/min) 150	3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000	3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Differential Temperature -2 (degF) 2				
Temperature 0 (degF) 20				



Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map 10 110	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				

Sensor	Offset (ft)
TEMP	16.33
WVFS8	14.10
WVFS7	14.10
WVFS6	14.10
WVFS5	14.10
WVFS4	14.10
WVFS3	14.10
WVFS2	14.10
WVFS1	14.10
WVFCAL	14.10
WVF3FT	14.10
WVF5FT	13.10
HEADVOLT	9.85
CCL$2	6.42
CCL$1	6.42
GR	5.18

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
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
Probe GR-CCL-2750 GOB (FW1211-026) 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: PROCESSED_TEP_Federal PA 522-26_RBL_09-02-18.db: field/well/run1/main
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 522-26_rbl_09-02-18\processed_tep_federal pa 522-26_rbl_09-
Dataset Pathname main.10
Dataset Creation Tue Sep 04 10:58:30 2018

Gamma Ray Calibration Report

Serial Number:	FW1211-026	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:17:31 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	113.6	cps
Calibrator Reading:	1015.2	cps
Sensitivity:	0.7065	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	474.429	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.002	0.636	0.800	81.196	126.690	0.582
CAL	0.002	0.744				
5'	0.004	0.595	0.800	81.196	136.133	0.261
SUM						
S1	0.000	0.695	0.000	100.000	144.013	-0.061
S2	0.002	0.672	0.000	100.000	149.123	-0.249
S3	0.001	0.641	0.000	100.000	156.111	-0.124
S4	0.001	0.641	0.000	100.000	156.099	-0.117
S5	0.003	0.673	0.000	100.000	149.300	-0.498
S6	0.003	0.673	0.000	100.000	149.300	-0.498
S7	0.003	0.691	0.000	100.000	145.385	-0.485
S8	0.003	0.716	0.000	100.000	140.333	-0.427

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.002	0.744	1.000	0.000

Air Zero Calibration, performed Sun Sep 02 09:02:51 2018:

	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: 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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