RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 12-26
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 12-26
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23703
SEC 26 TWP 6S RGE 95W
Other Services
PN

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

Date	02-SEP-2018
Run Number	One
Depth Driller	8875 FT
Depth Logger	8791 FT
Bottom Logged Interval	8777 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	237°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	17:30
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	1110 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8835 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 4855 FT - 4878 FT
Log ran from 8777 FT to surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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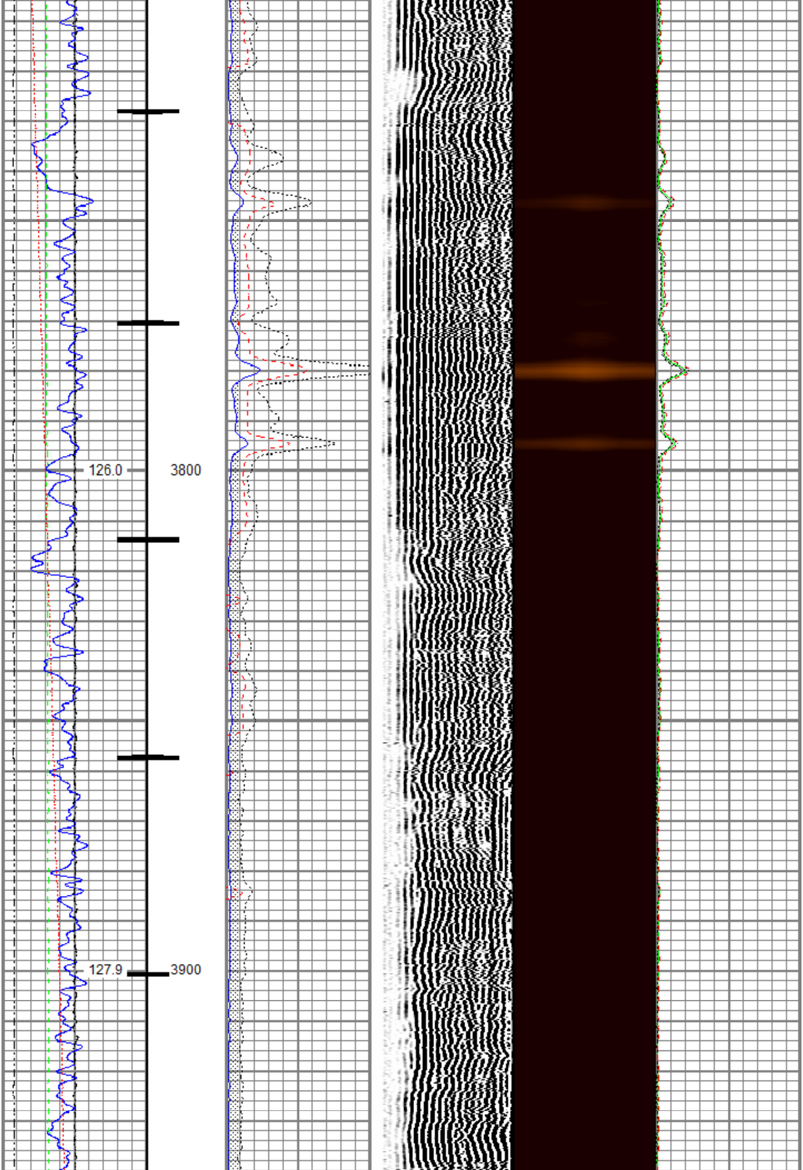
Main Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 12-26\tep_federal pa 12-26_rbl_09-02-18.db
Dataset Pathname	main.2
Presentation Format	ros_rbt004_t
Dataset Creation	Mon Sep 03 12:49:59 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					
10 CCL 0					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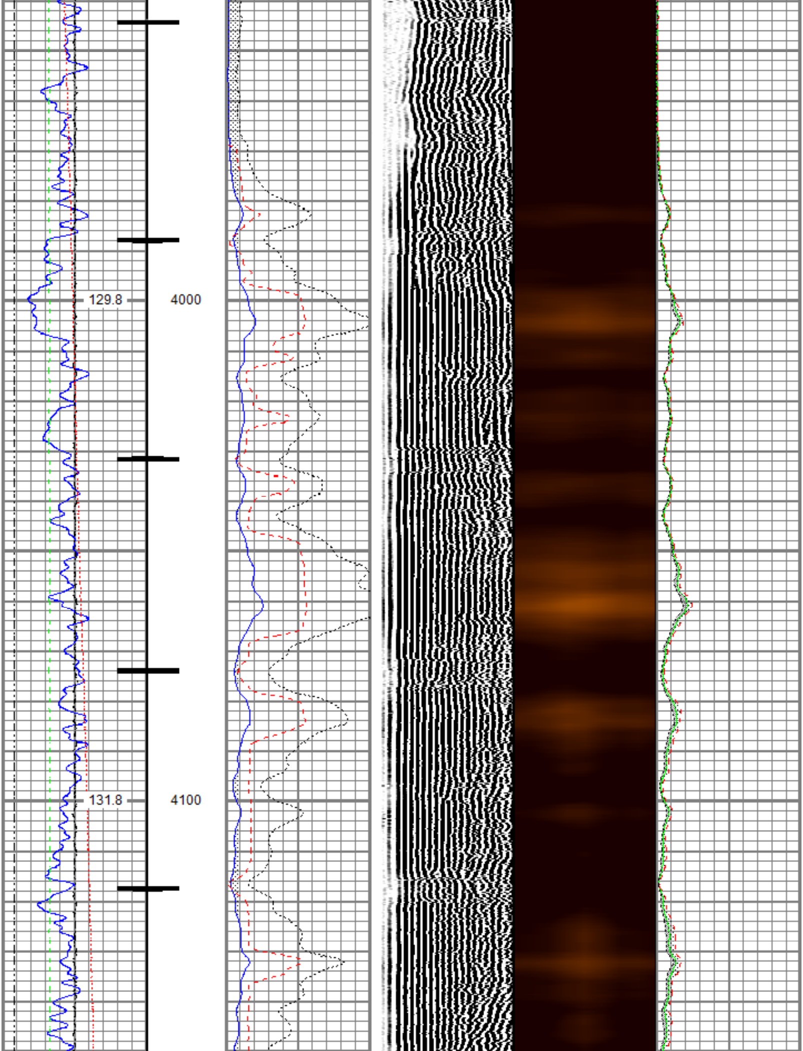
3800
127.9
3900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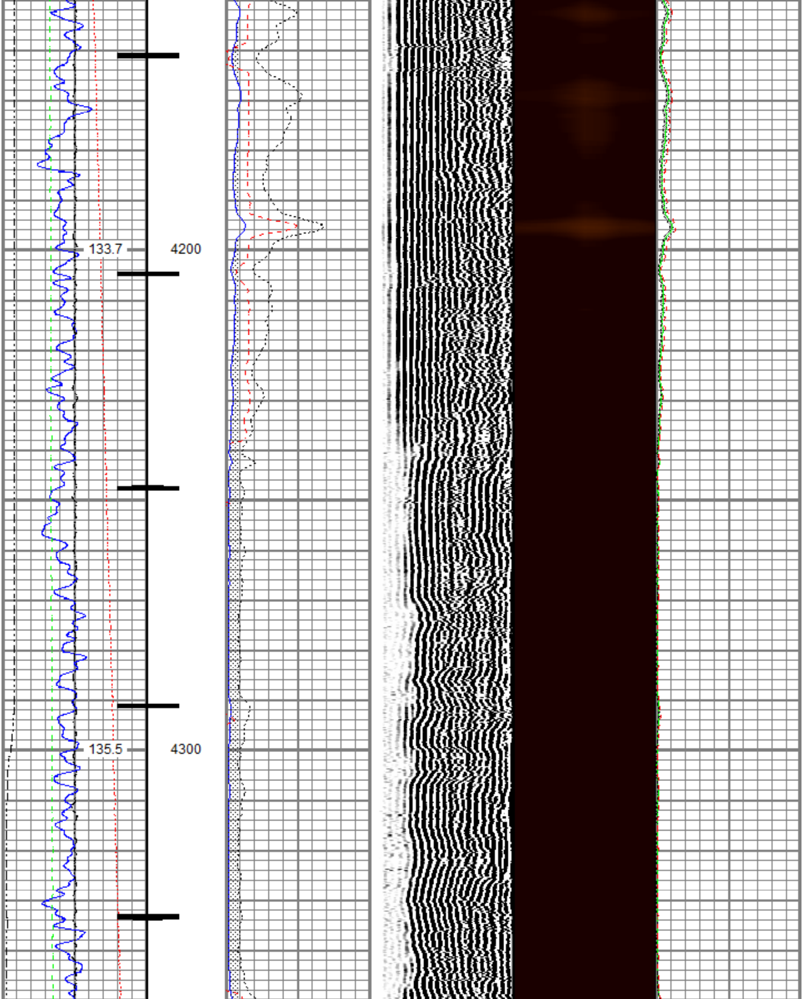
4100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4200
135.5
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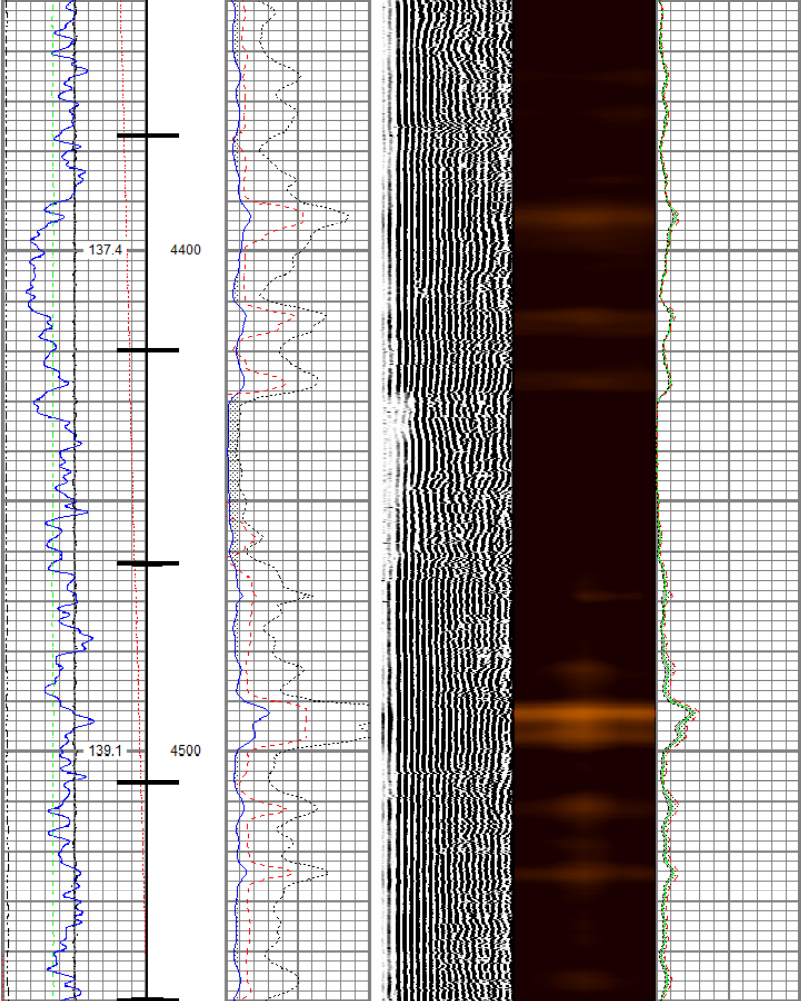
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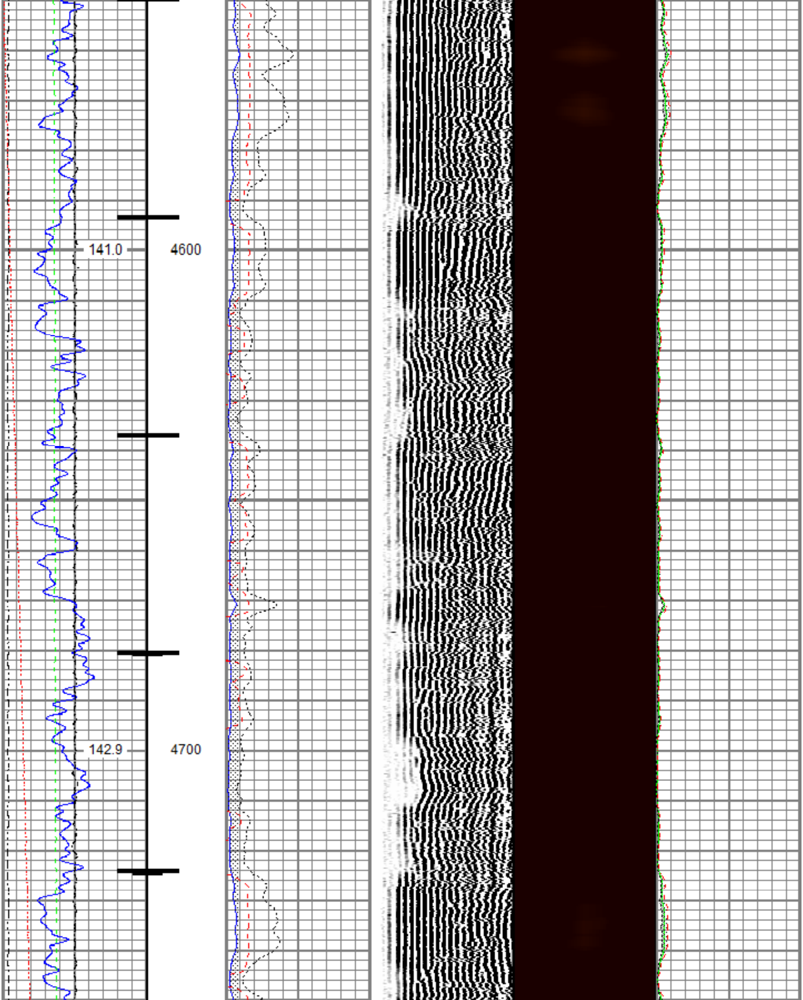
4400
139.1
4500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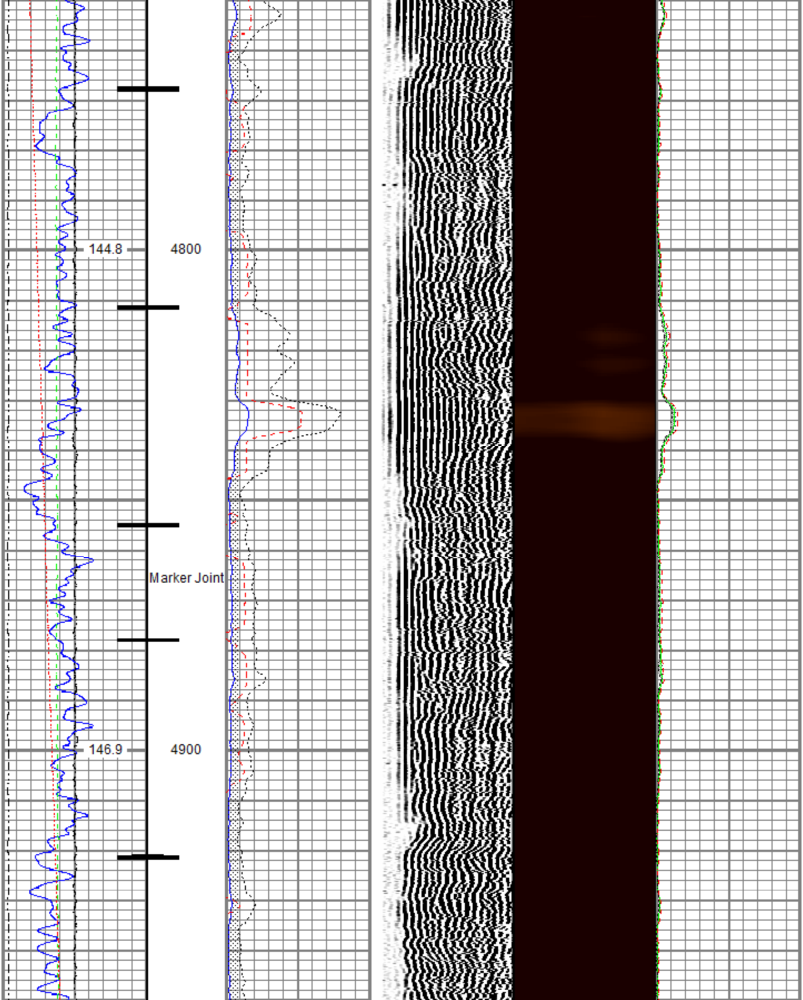
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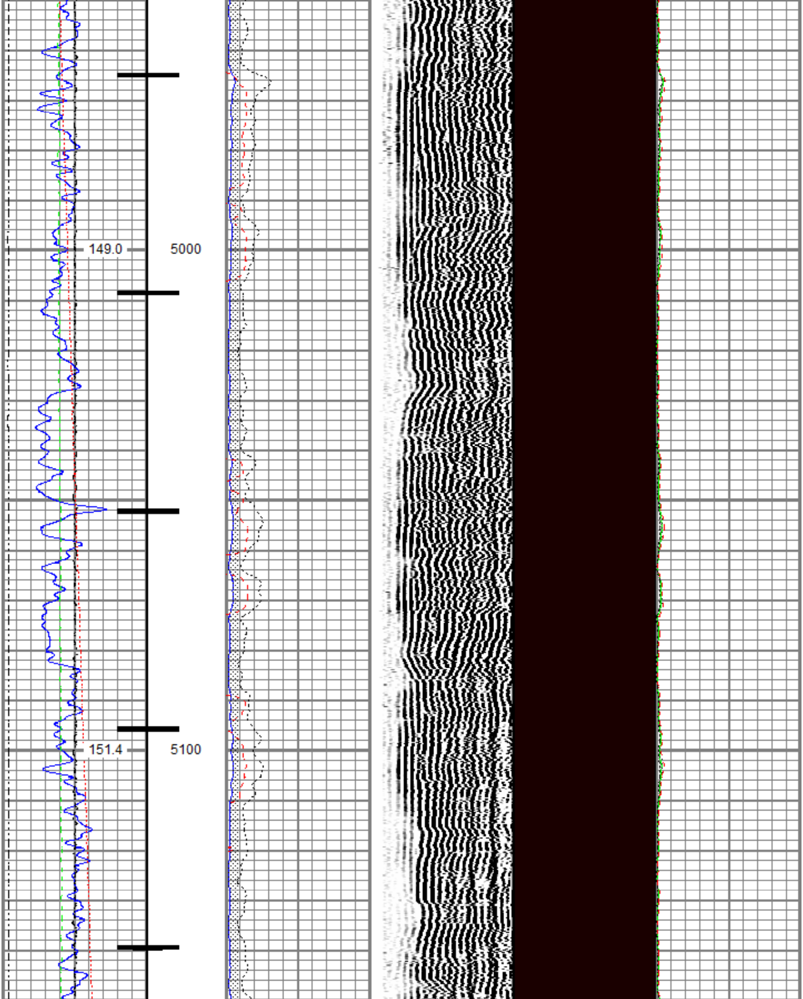
4800
Marker Joint
146.9
4900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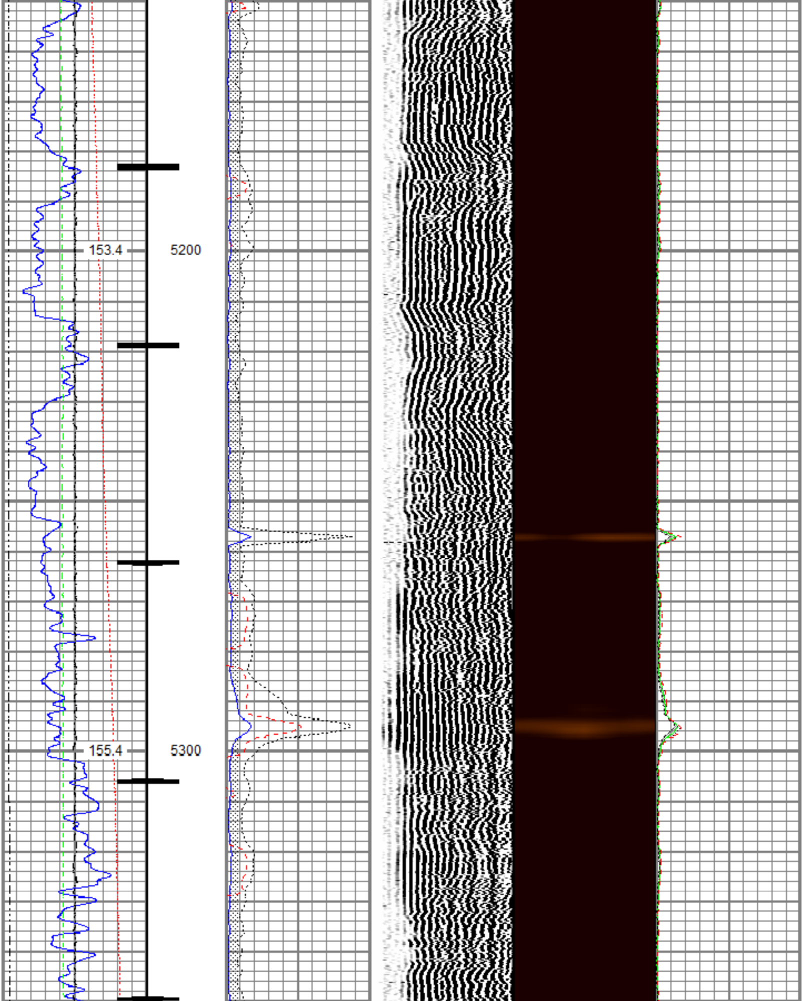
5100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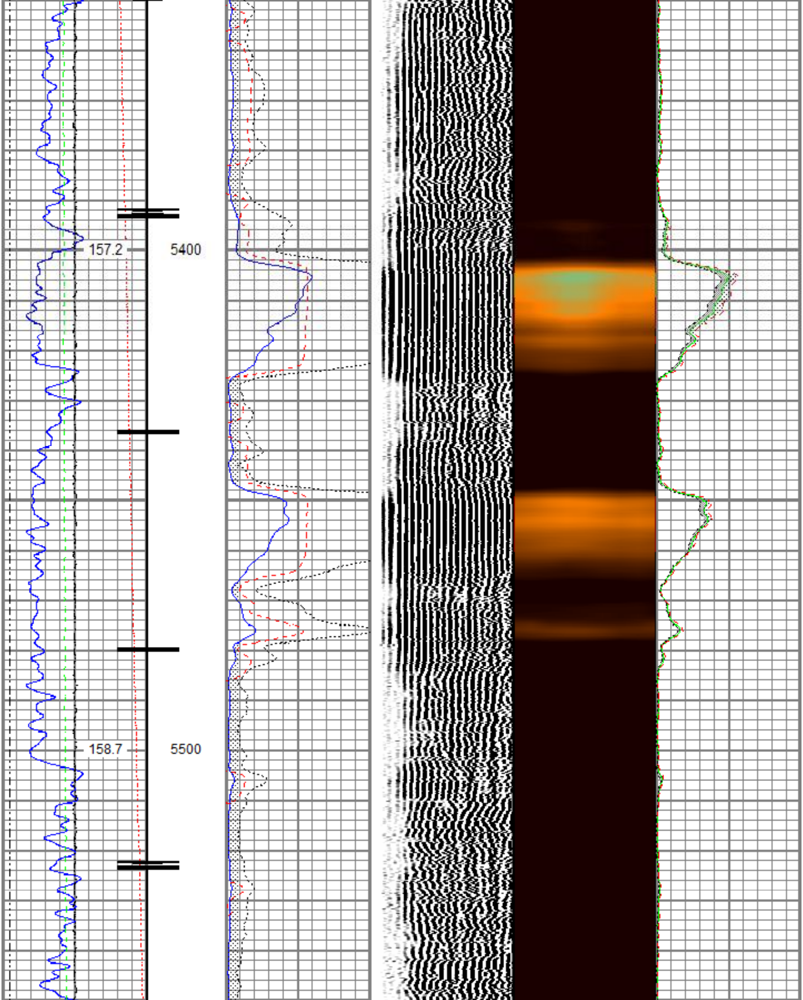
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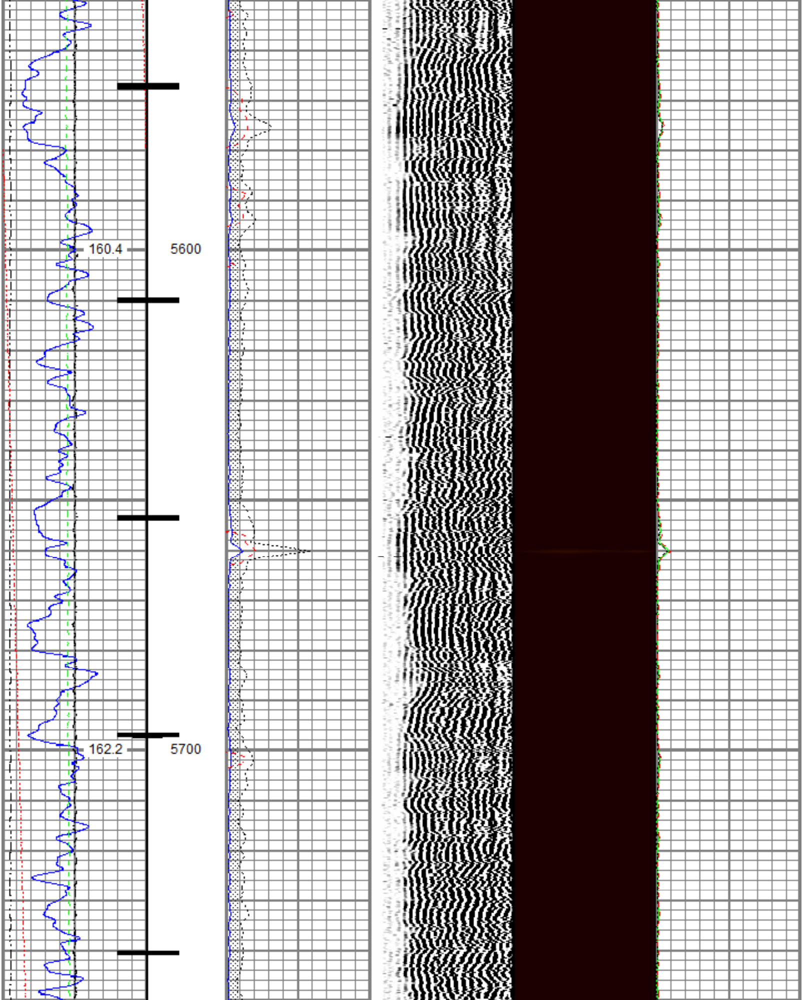
5500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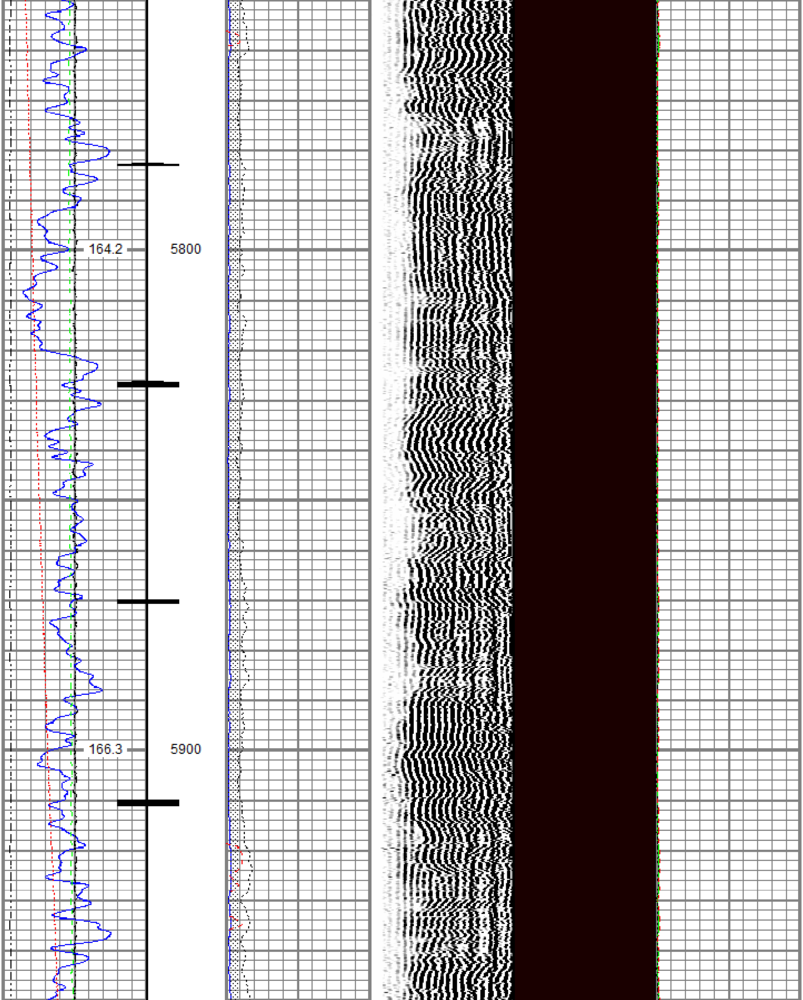
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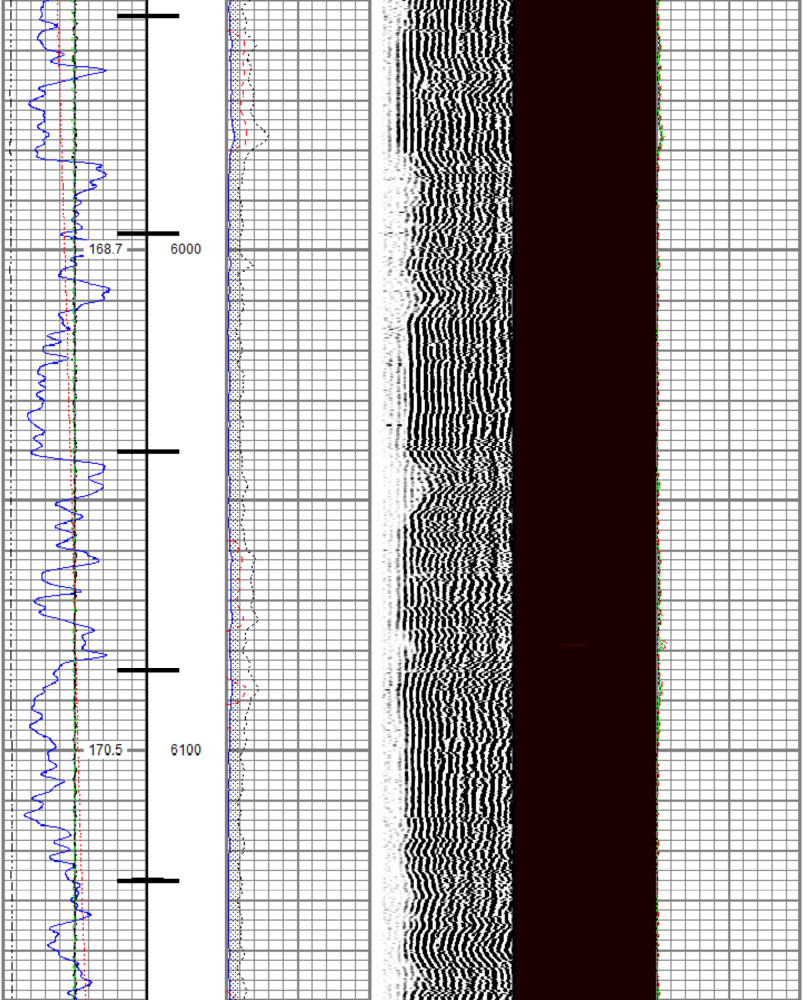
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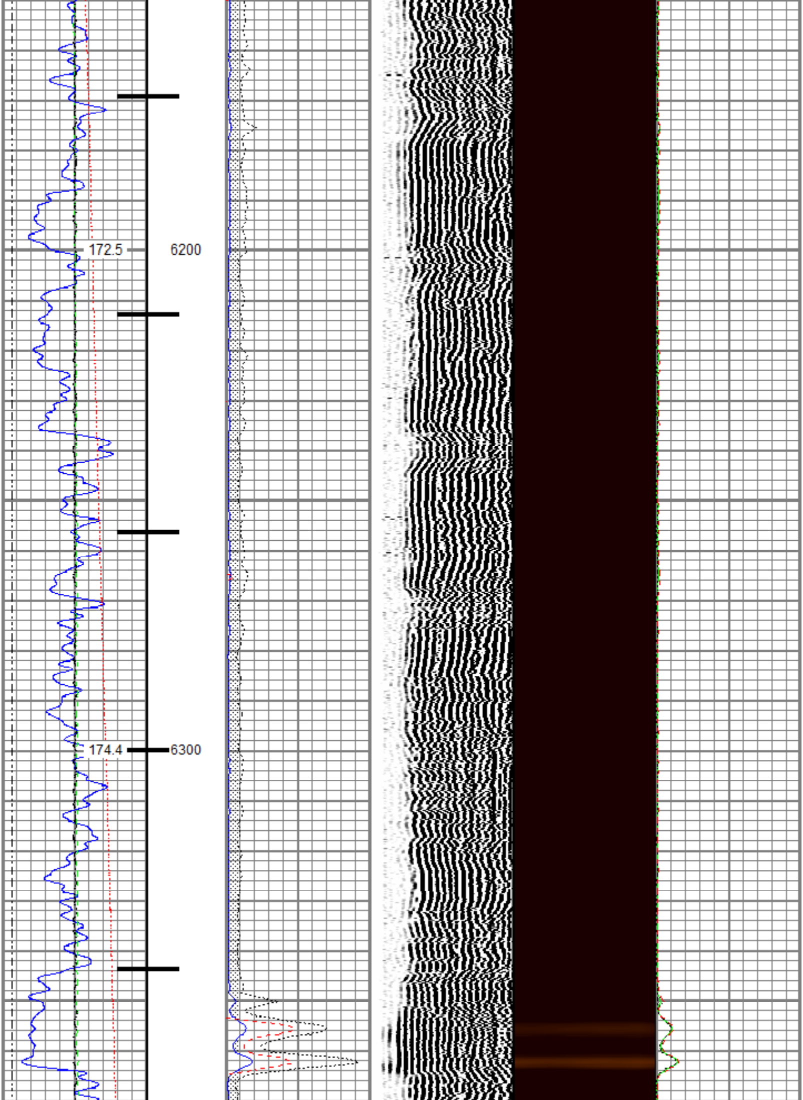
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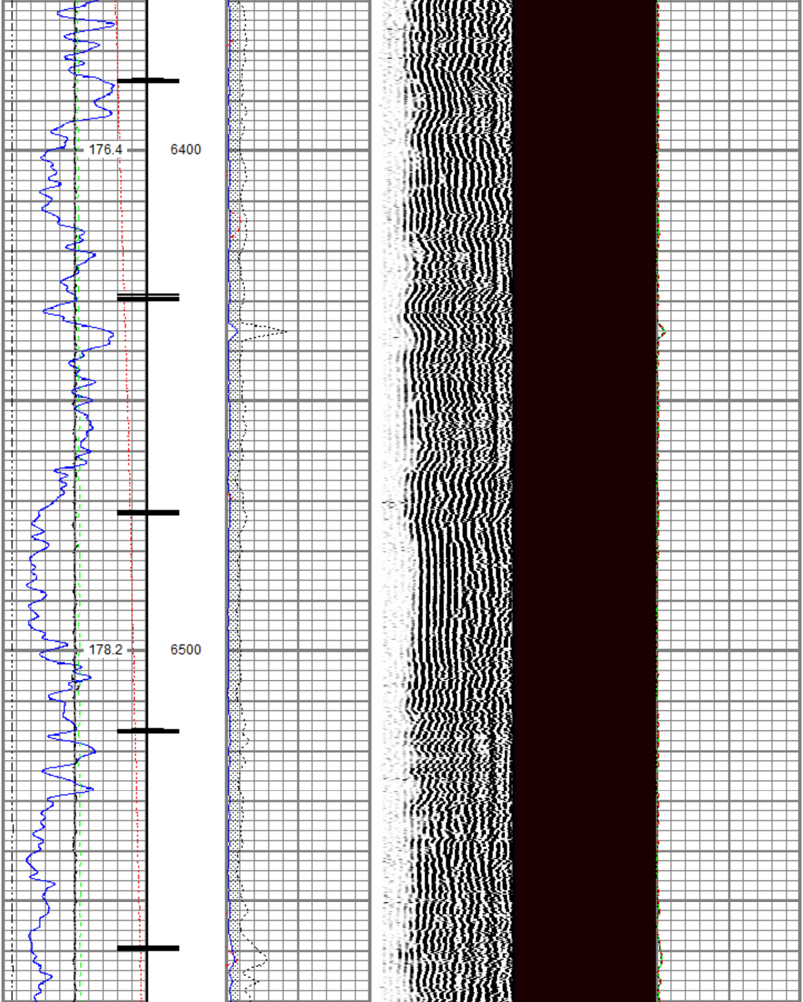
6200
174.4
6300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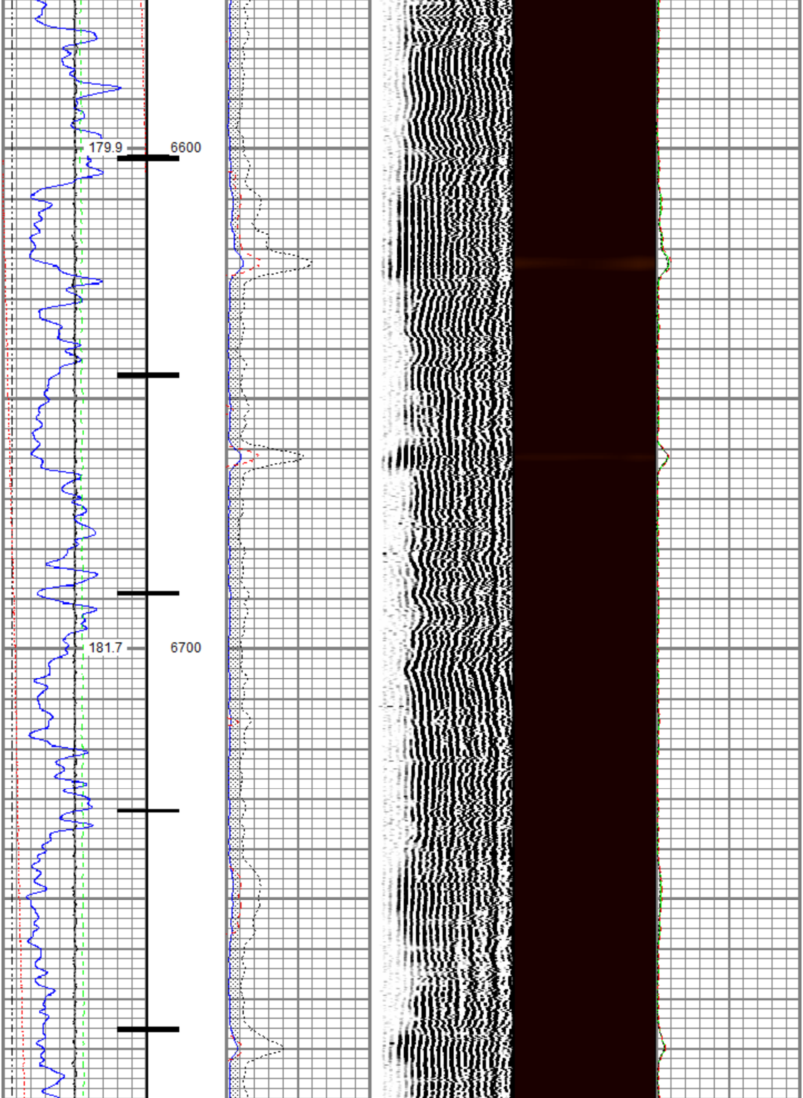
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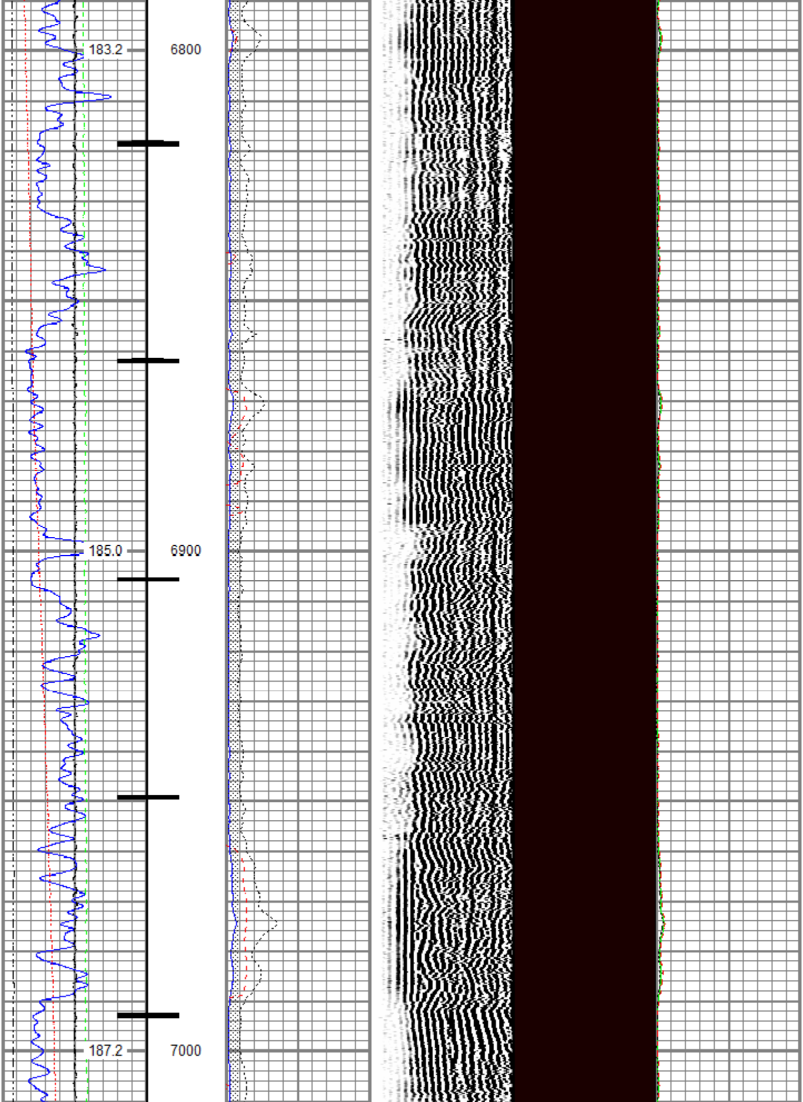
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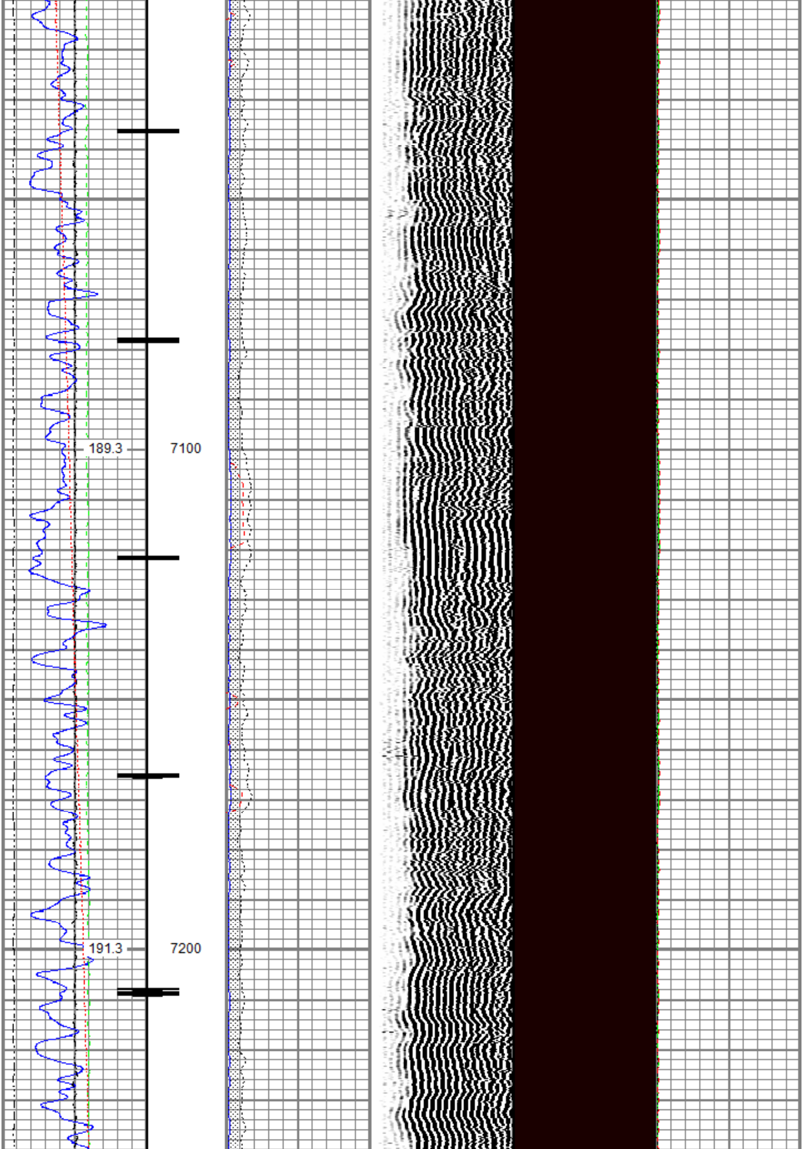
6900
187.2
7000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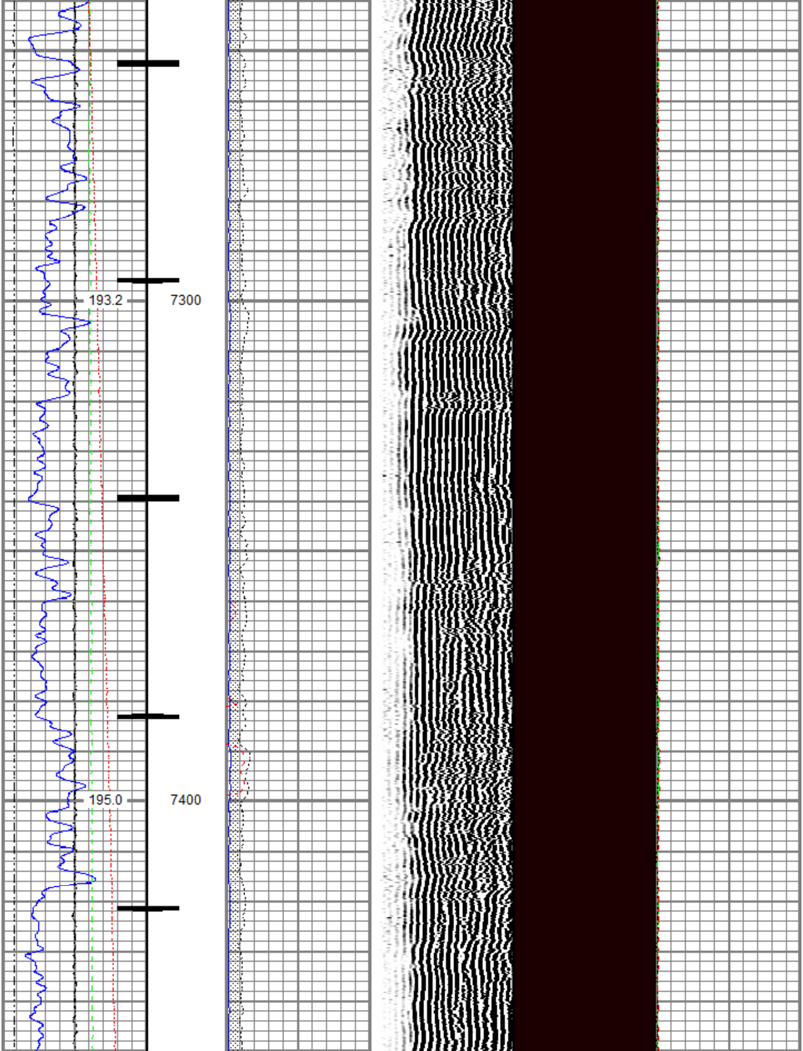
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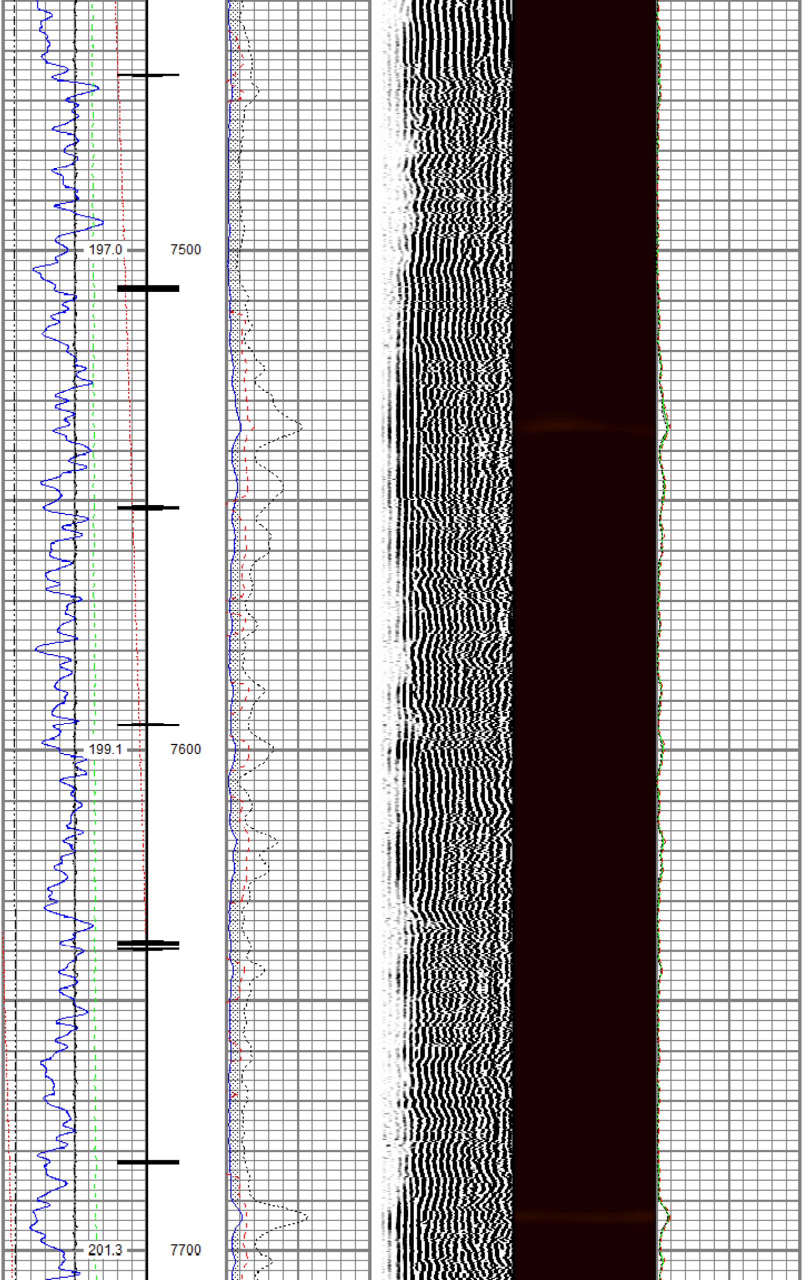
197.0
7500
199.1
7600
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7700

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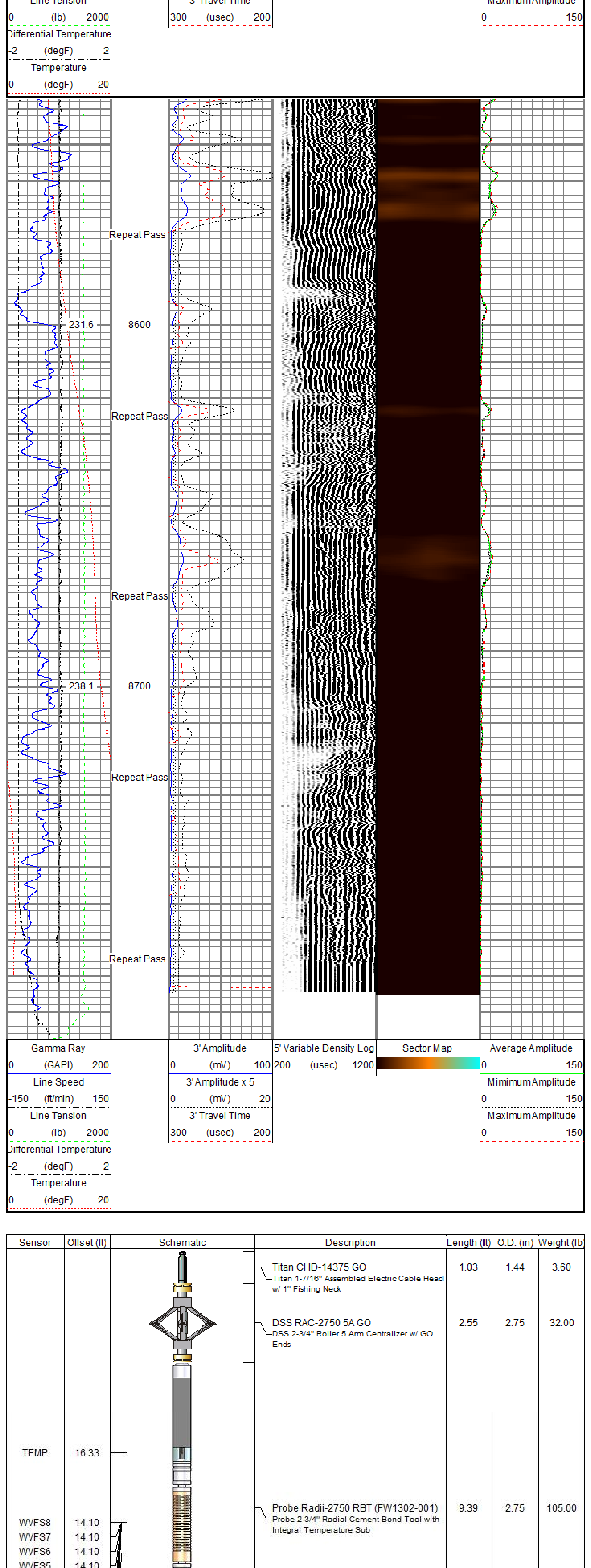
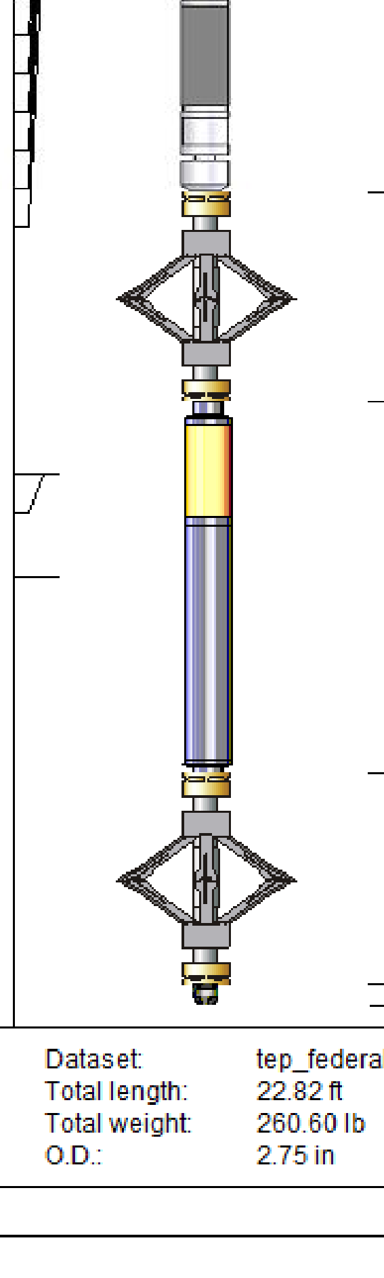
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 12-26\tep_federal pa 12-26_rbl_09-02-18.db
Dataset Pathname	repeat.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 03 12:53:45 2018
Charted by	Depth in Feet scaled 1:240



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
CCL$2	6.42
CCL$1	6.42
GR	5.18



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:	tep_federal pa 12-26_rbl_09-02-18.db: field/well/run1/main.2
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 12-26\tep_federal pa 12-26_rbl_09-02-18.db
Dataset Pathname	main.2
Dataset Creation	Mon Sep 03 12:49:59 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:	32.895	ft

Master Calibration, performed (Derived):

	Raw (v) Zero	Raw (v) Cal	Calibrated (mv) Zero	Calibrated (mv) Cal	Results Gain	Results Offset
3'	0.001	0.858	0.800	81.196	93.739	0.748
CAL	0.002	0.781				
5'	-0.039	0.718	0.800	81.196	106.233	4.940
SUM						
S1	-0.003	0.812	0.000	100.000	122.721	0.380
S2	0.000	0.840	0.000	100.000	119.048	-0.044
S3	0.001	0.899	0.000	100.000	111.342	-0.067
S4	0.000	0.994	0.000	100.000	100.601	-0.000
S5	-0.001	1.011	0.000	100.000	98.822	0.058
S6	0.000	0.946	0.000	100.000	105.742	-0.033
S7	-0.003	0.857	0.000	100.000	116.317	0.363
S8	0.001	0.798	0.000	100.000	125.452	-0.067

Internal Reference Calibration, performed (Not Performed):

	Raw (v) Zero	Raw (v) Cal	Calibrated (v) Zero	Calibrated (v) Cal	Results Gain	Results Offset
CAL	0.000	0.000	0.002	0.781	1.000	0.000

Air Zero Calibration, performed Sun Sep 02 15:08:22 2018:

	Raw (v) Zero	Calibrated (v) Zero	Results Offset
3'	0.001	0.000	0.000
5'	0.005	0.000	-0.000
SUM			
S1	-0.001	0.000	-0.000
S2	0.003	0.000	0.000
S3	0.002	0.000	0.000
S4	0.003	0.000	0.000
S5	0.003	0.000	-0.000
S6	0.003	0.000	0.000
S7	0.003	0.000	-0.000
S8	0.003	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	

RELIANCE OILFIELD SERVICES

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Well	Federal PA 12-26
Field	Parachute
County	Garfield
State	Colorado