RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal PA 312-26
Field Parachute
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC		
Well	Federal PA 312-26		
Field	Parachute		
County	Garfield	State	Colorado
Location:	API # : 05-045-23721	Other Services	PN
	SEC 26 TWP 6S RGE 95W		
Permanent Datum	Ground Level	Elevation	5636.9'
Log Measured From	Kelly Bushing	24 FT	Elevation 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	8793 FT
Depth Logger	8724 FT
Bottom Logged Interval	8710 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	235°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	14:00
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	1128 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8753 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 4818 FT to 4838 FT
Log ran from 8710 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

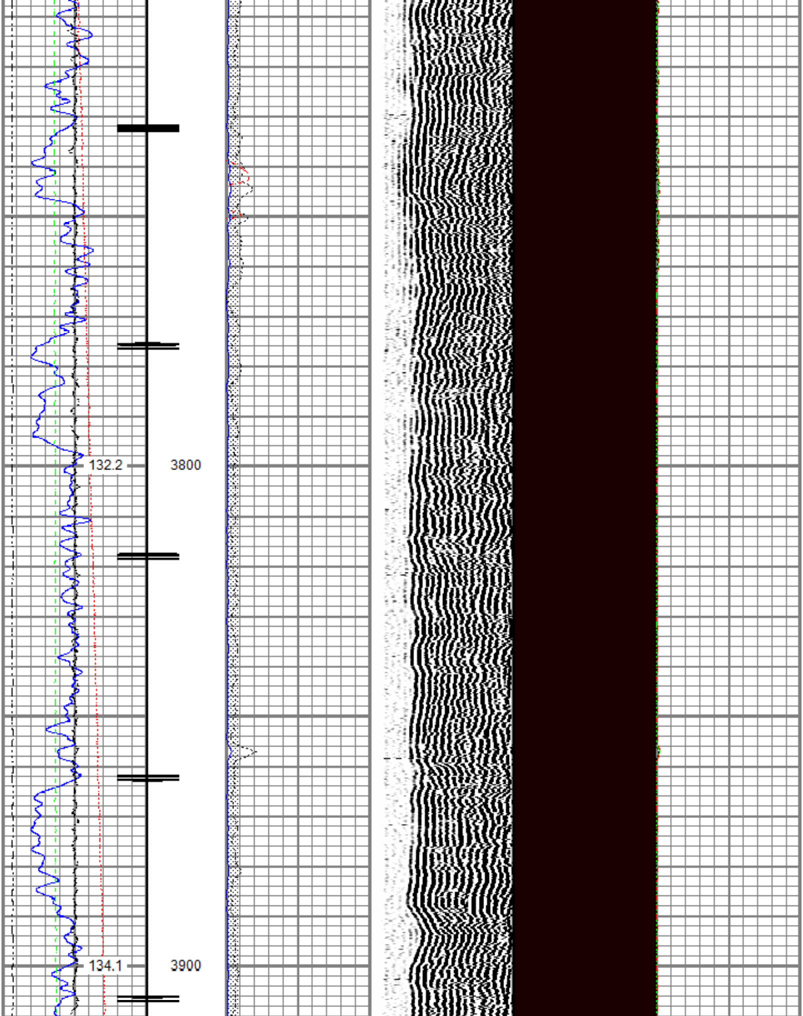
Database File	tep\federal pa 312-26\tep_federal pa 312-26_rbl_09-02-18.db
Dataset Pathname	Main.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 03 11:27:46 2018
Charted by	Depth in Feet scaled 1:240

Gamma Ray	0	(GAPI)	200	3' Amplitude	0	(mV) 100
Line Speed	-150	(ft/min)	150	3' Amplitude x 5	0	(mV) 20
Line Tension	0	(lb)	2000	3' Travel Time	300	(usec) 200
Differential Temperature	-2	(degF)	2			
Temperature	0	(degF)	20			
CCL	10		0			

5' Variable Density Log 200 (usec) 1200

Sector Map

Average Amplitude	0		150
Mimimum Amplitude	0		150
Maximum Amplitude	0		150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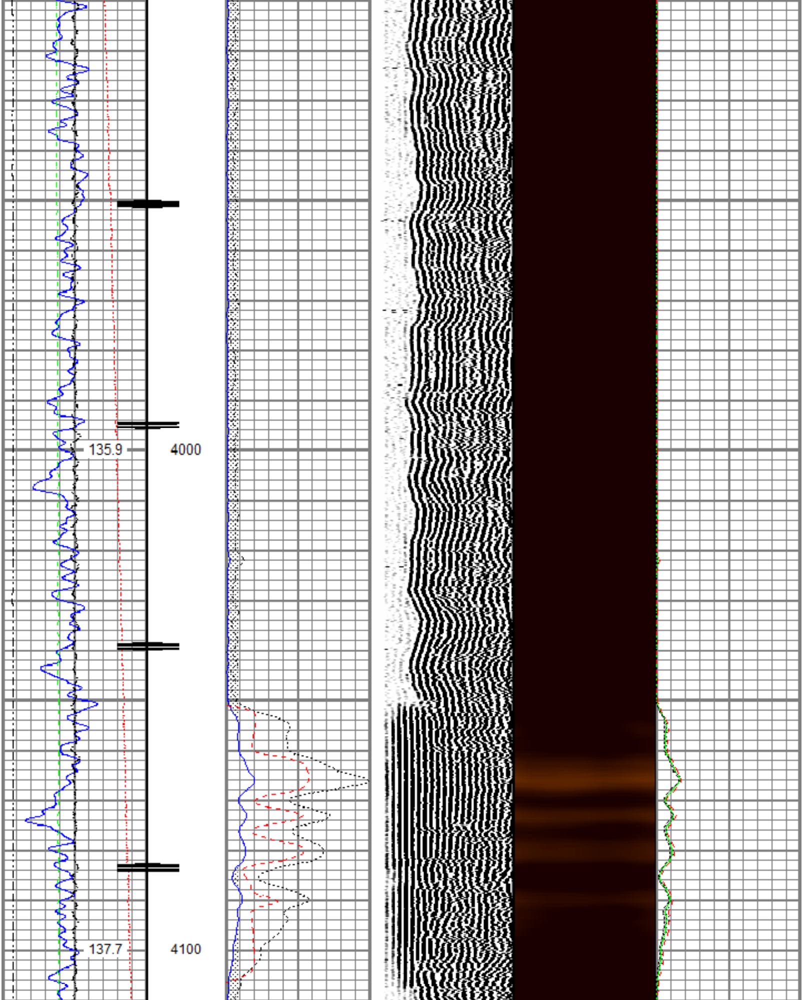
134.1
3900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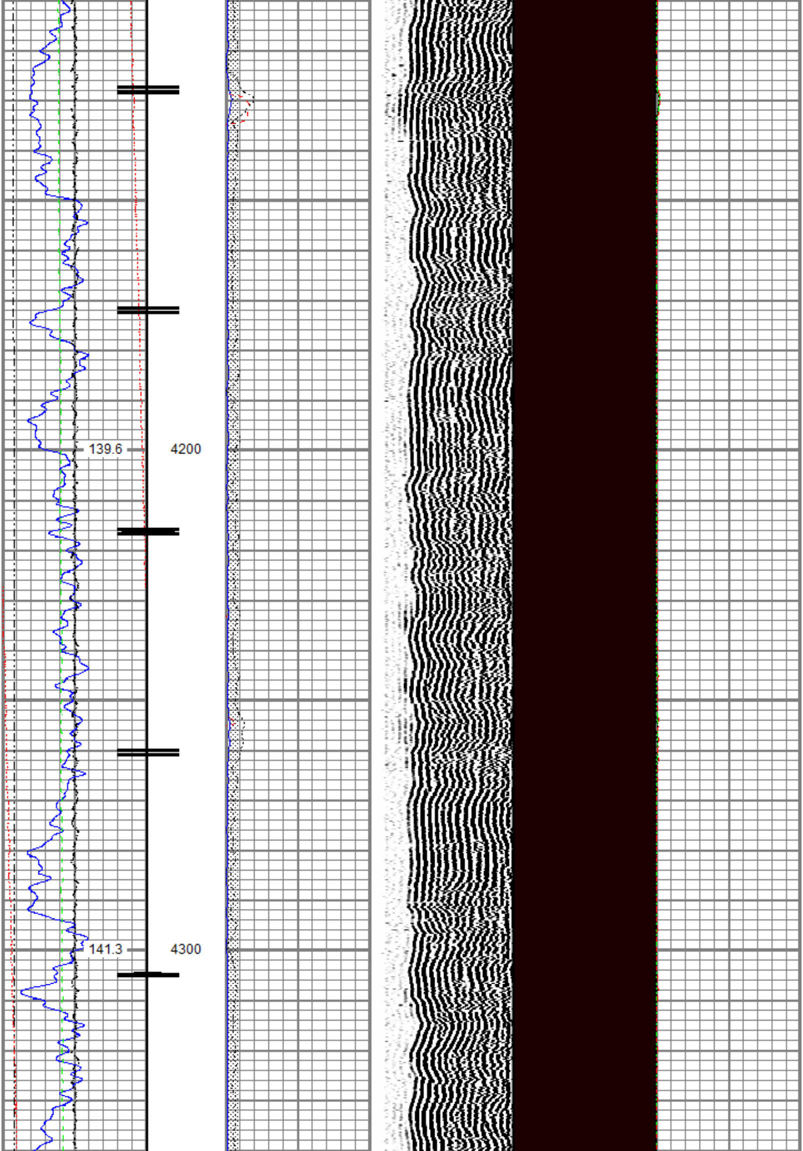
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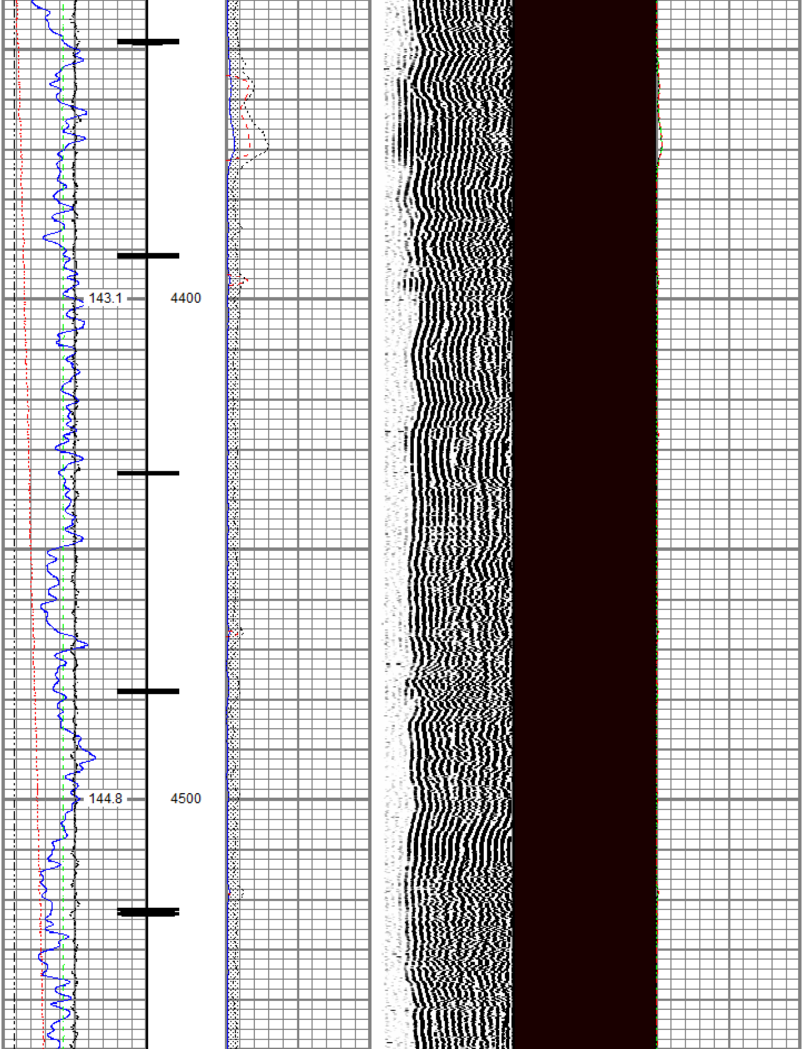
4300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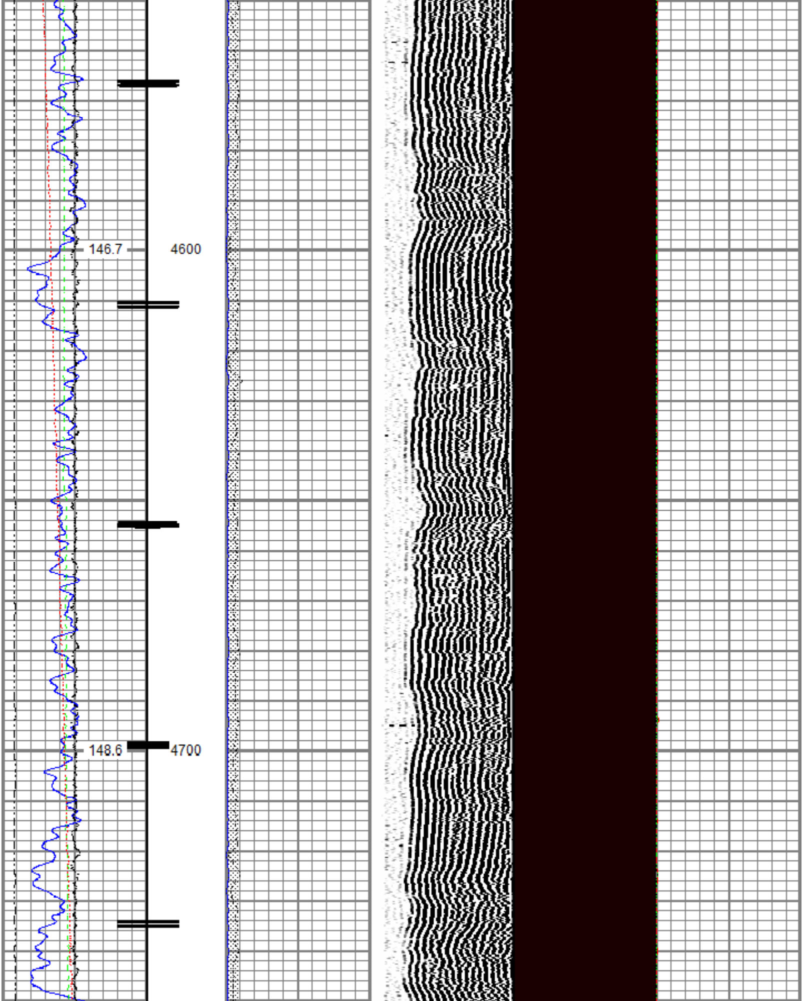
4400
144.8
4500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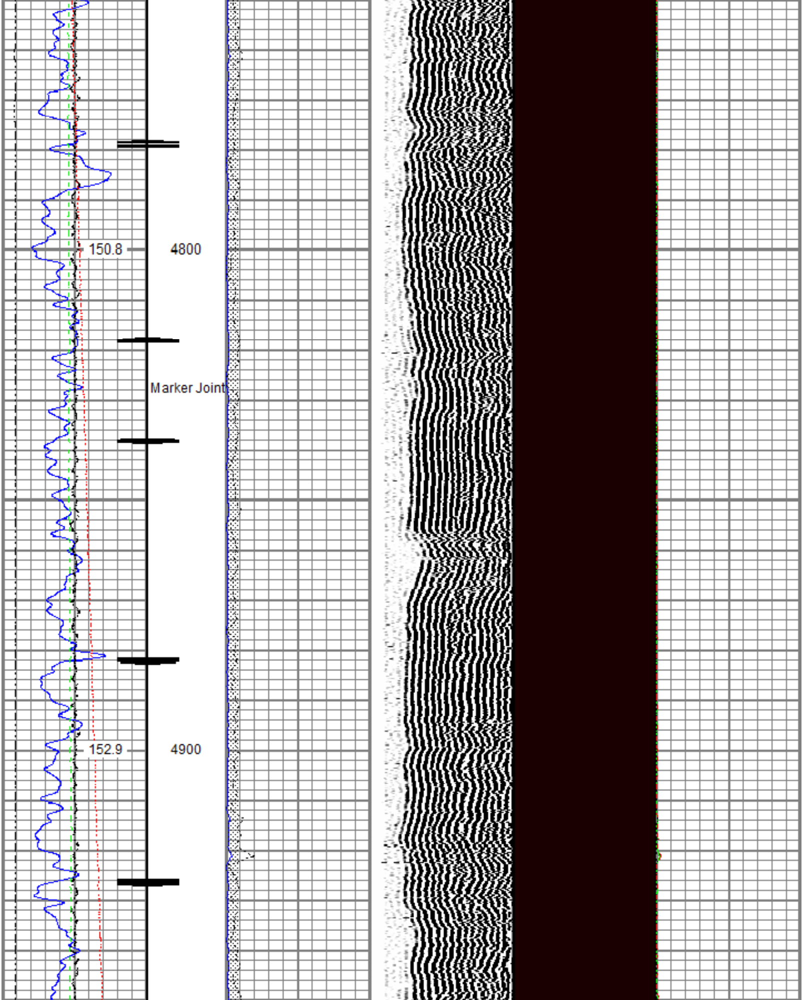
4700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4800
Marker Joint
152.9
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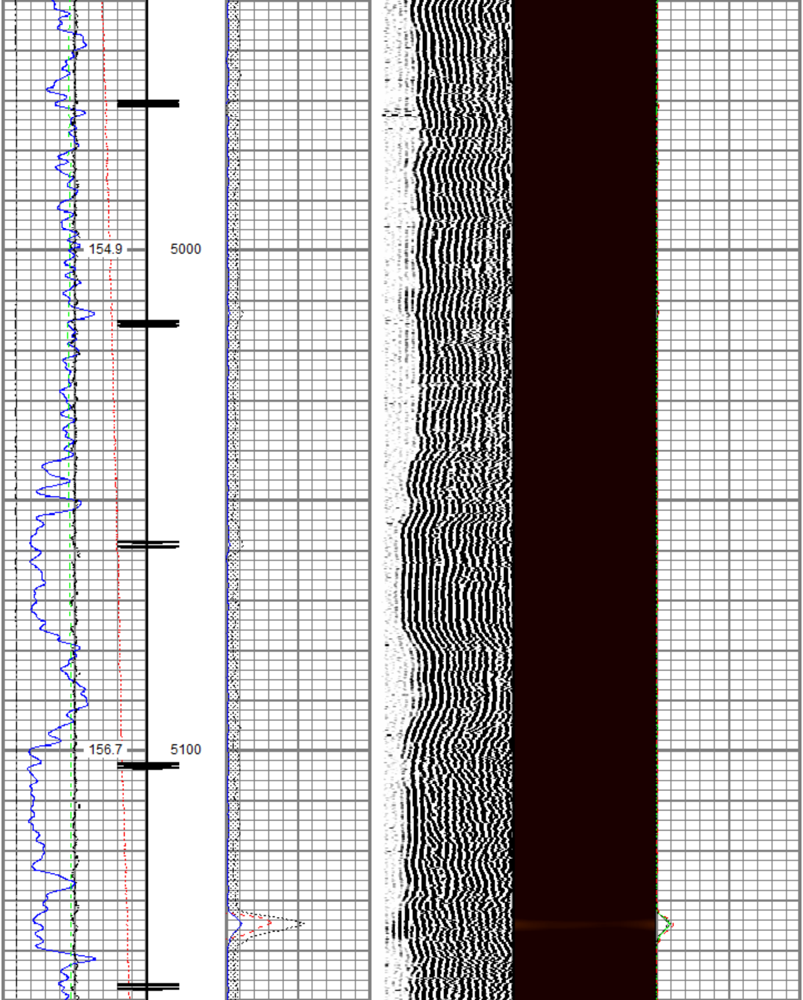
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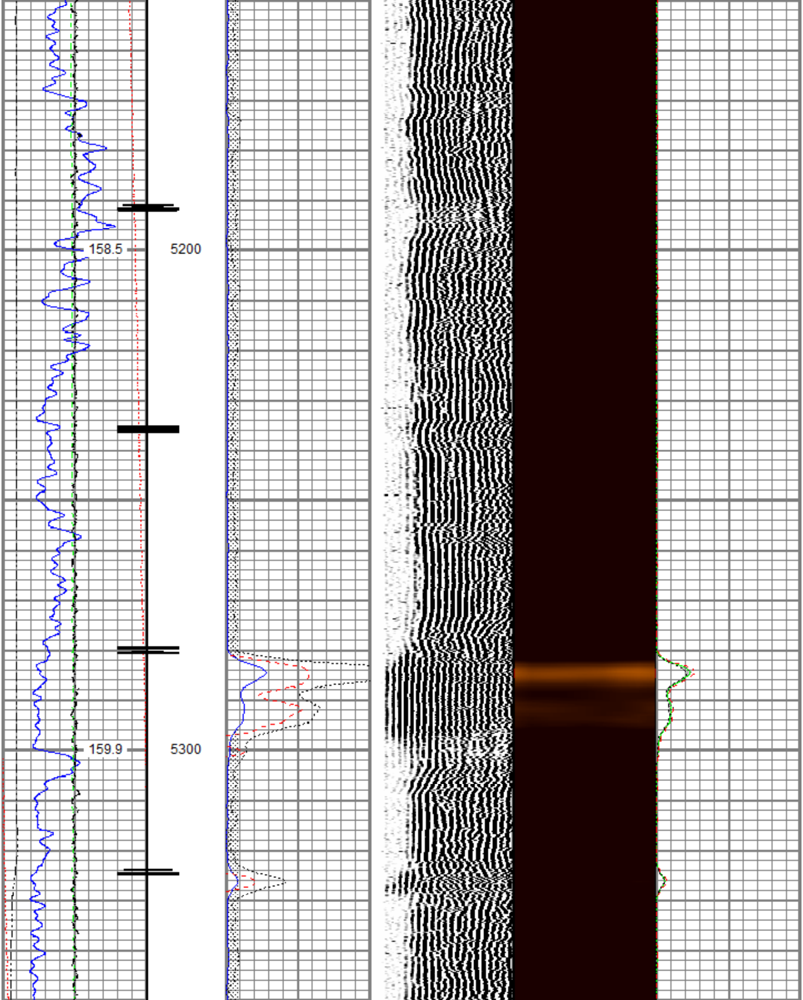
156.7
5100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5200
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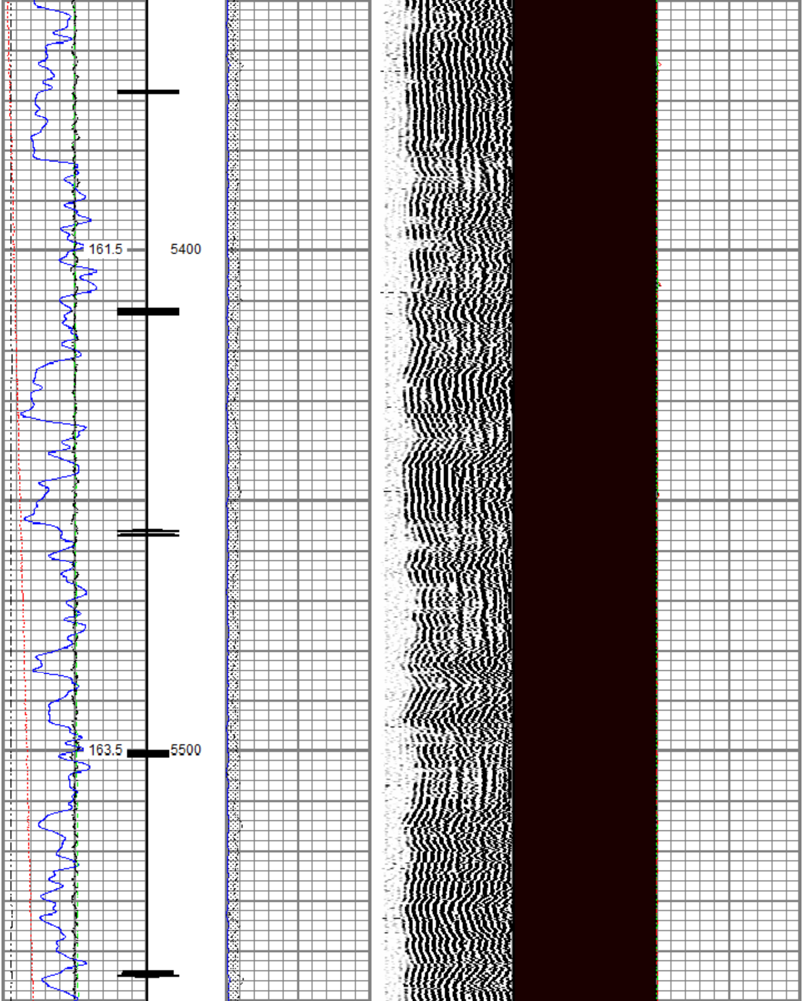
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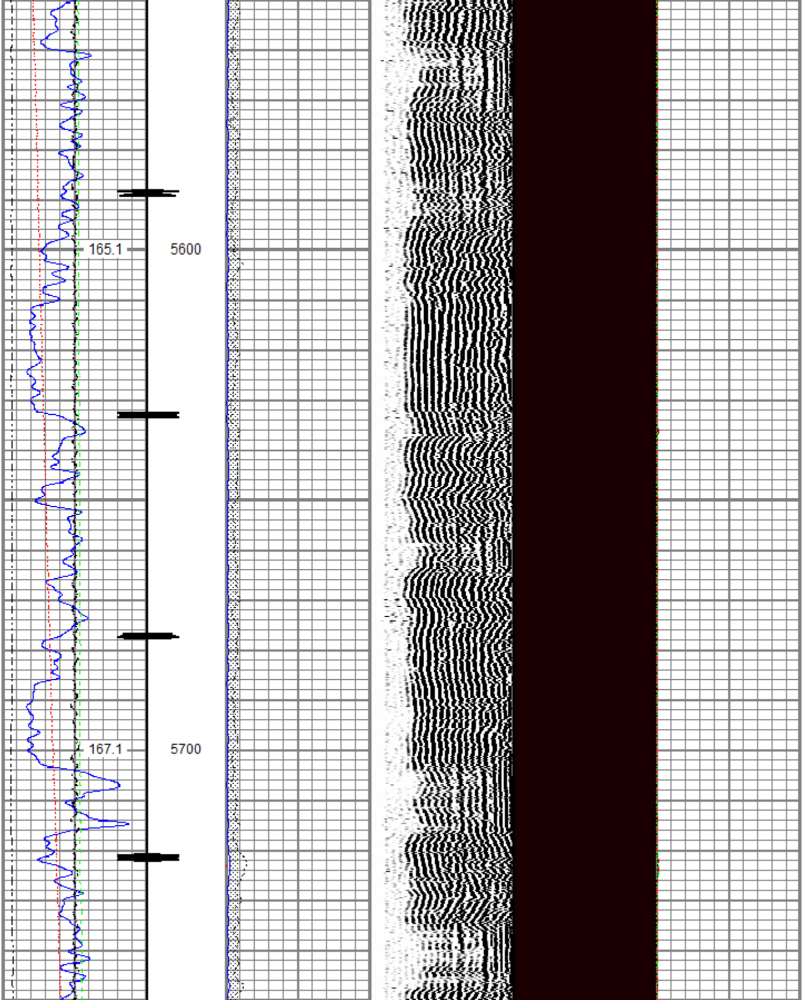
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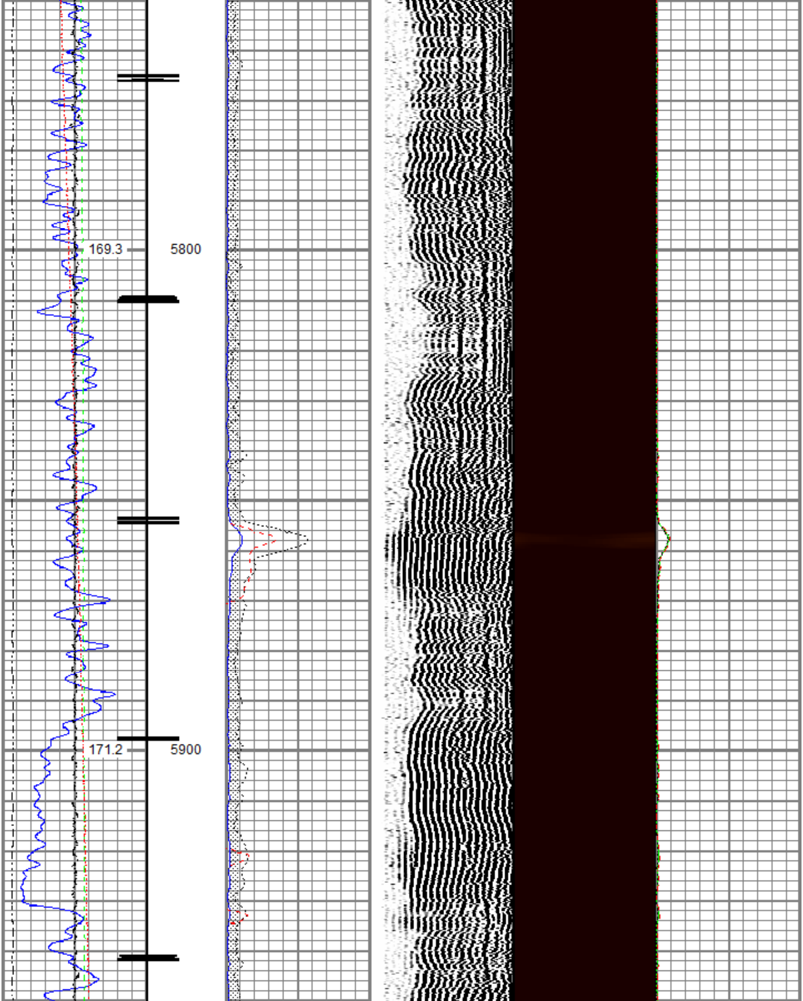
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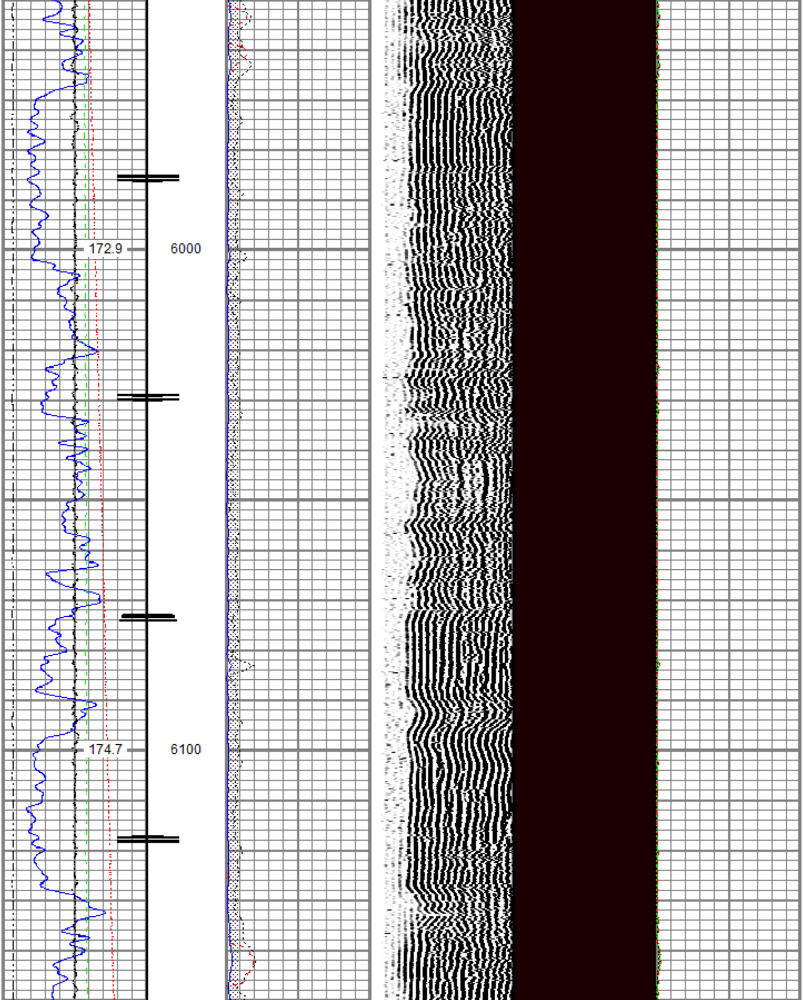
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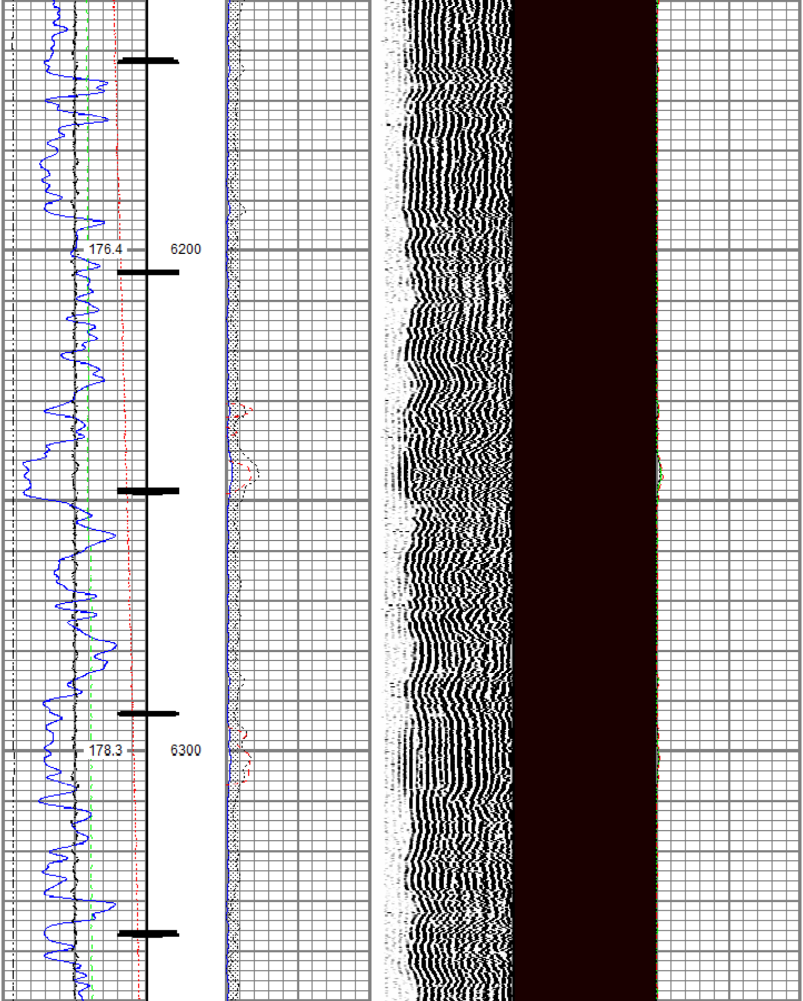
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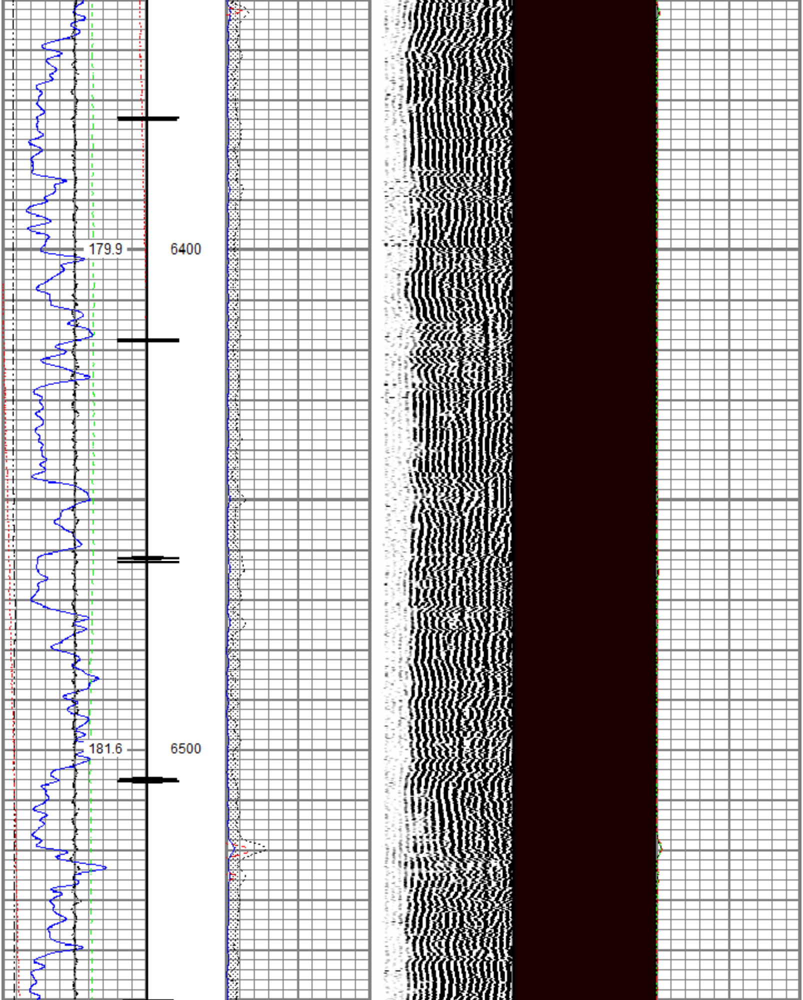
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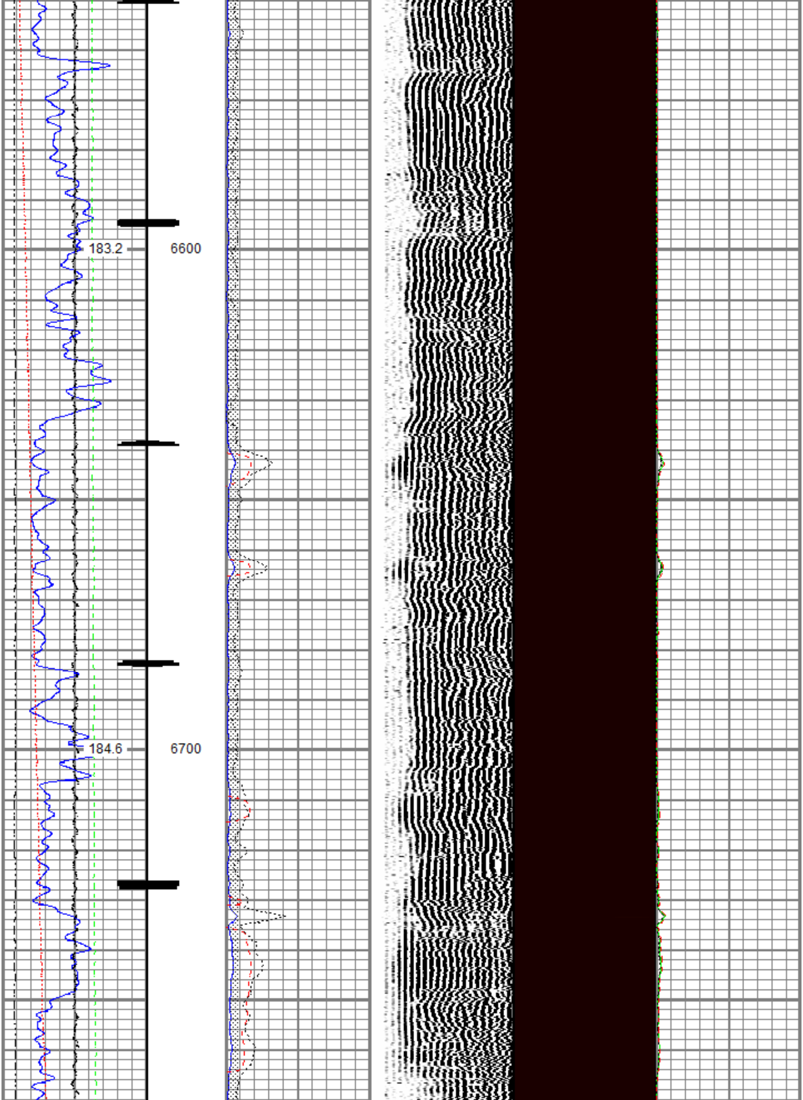
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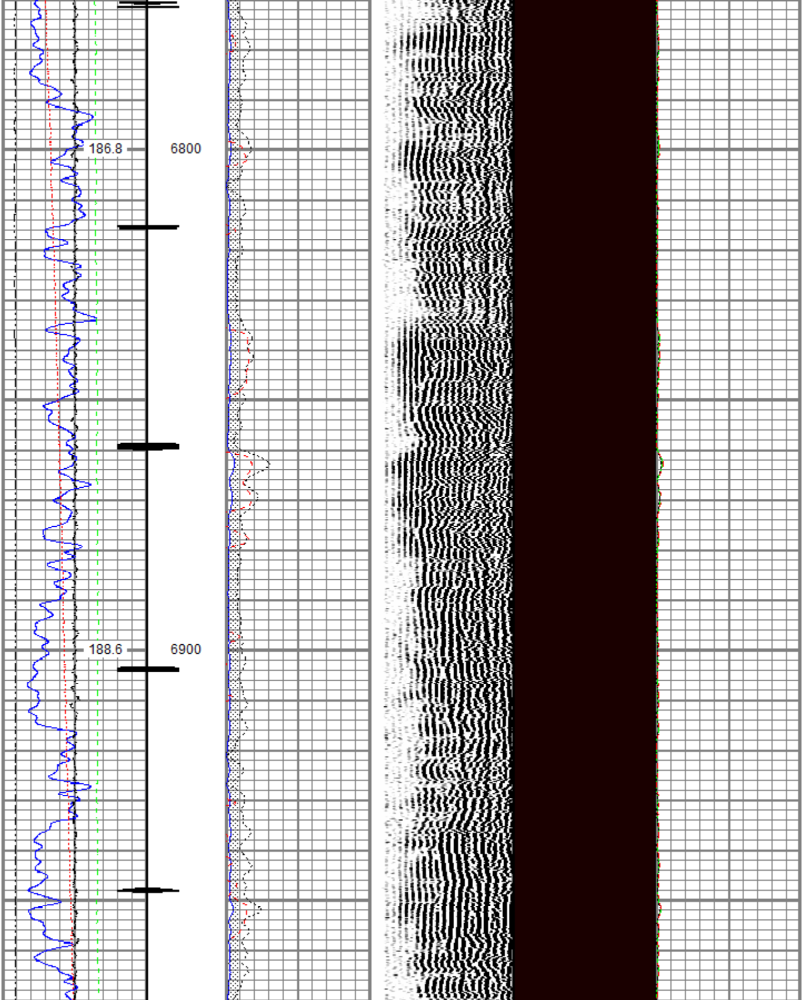
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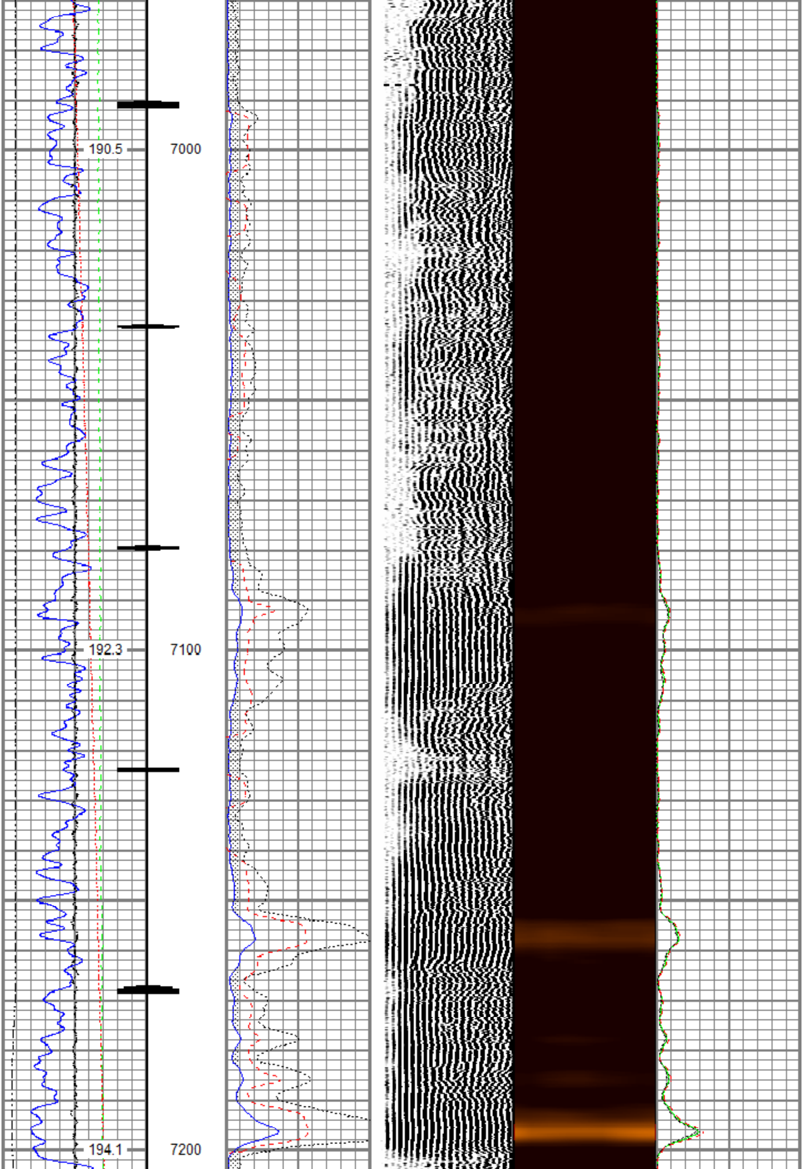
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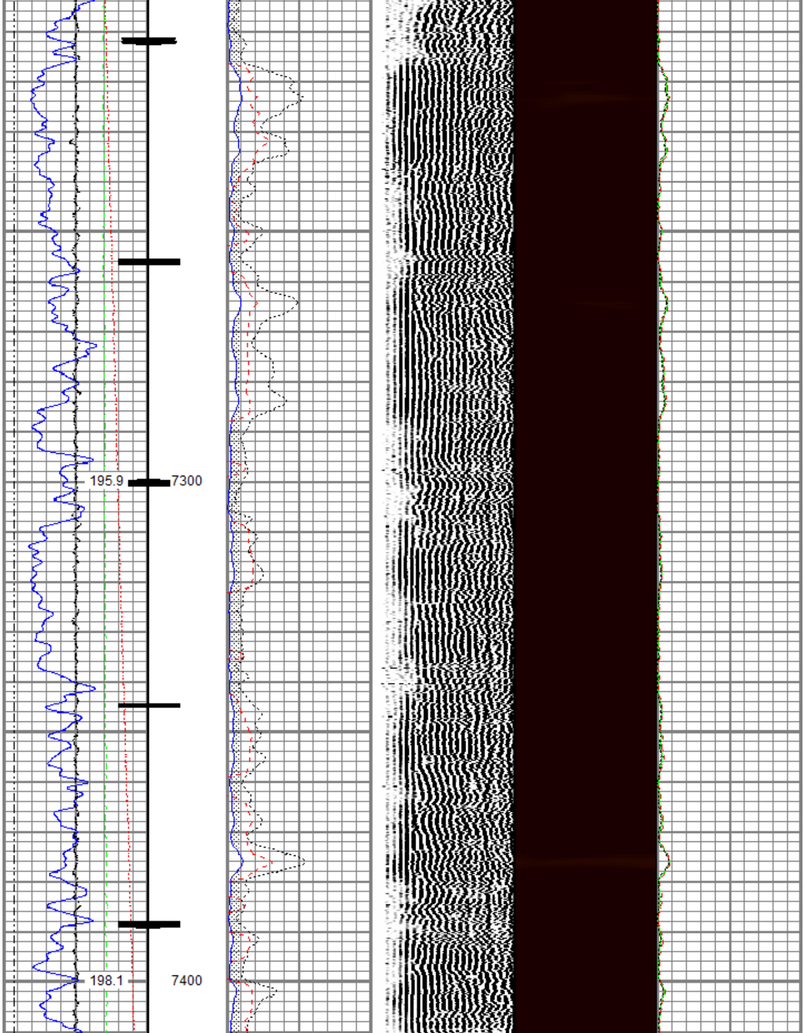
194.1
7200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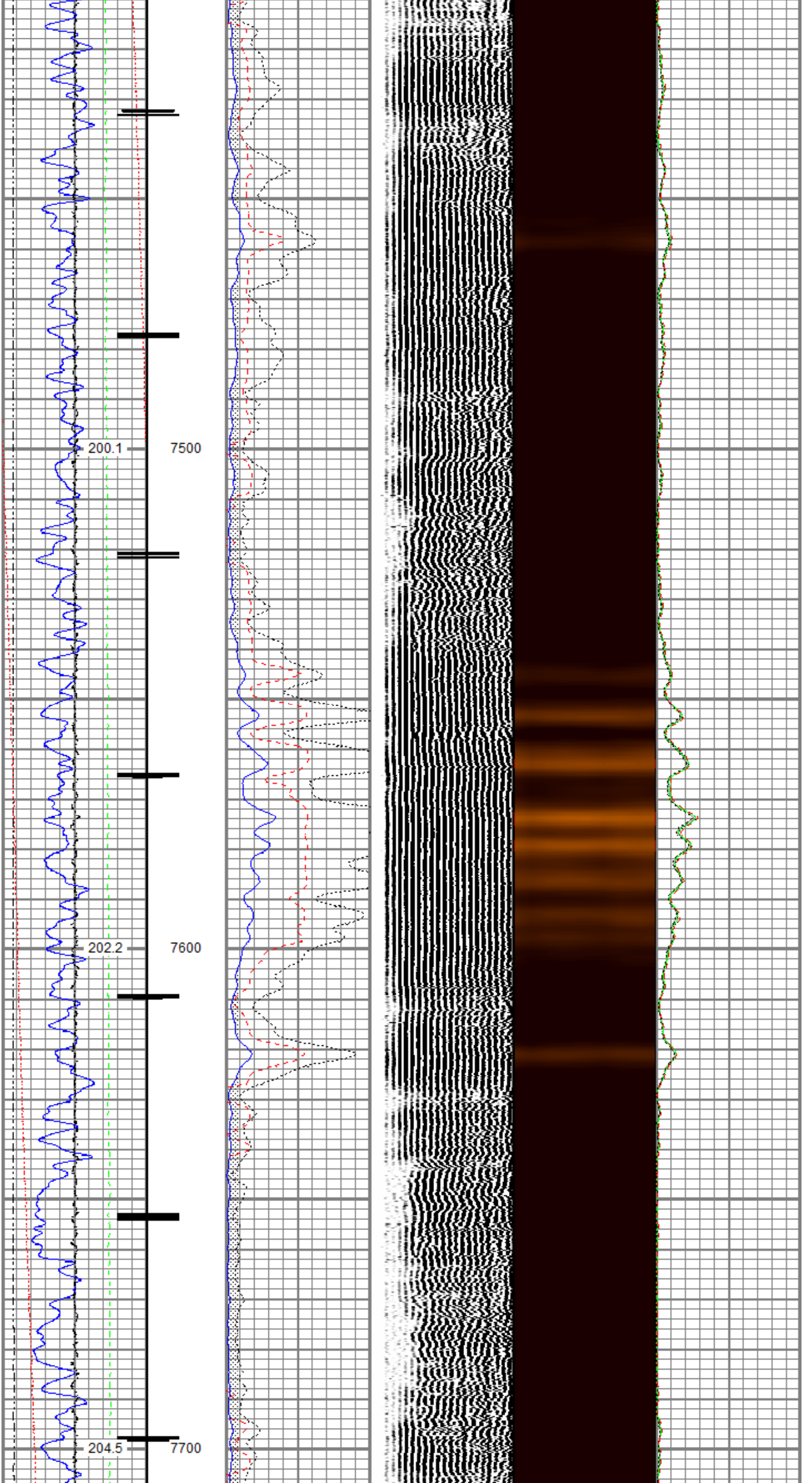
200.1
7500
202.2
7600
204.5
7700

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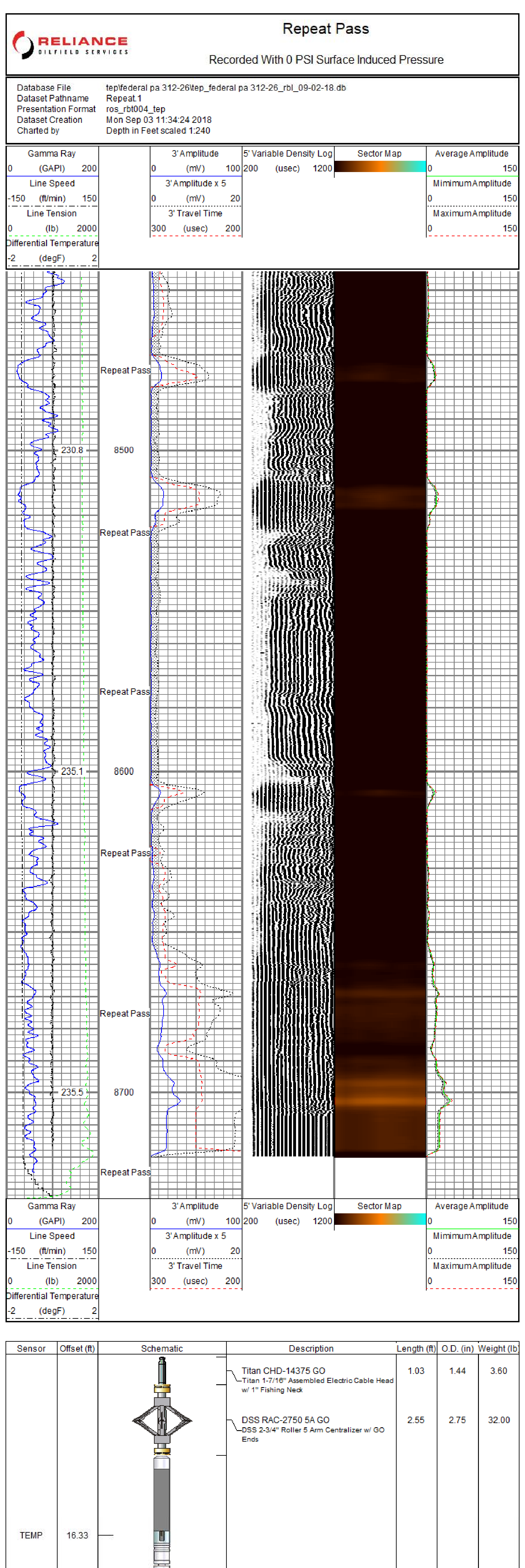
Repeat Pass

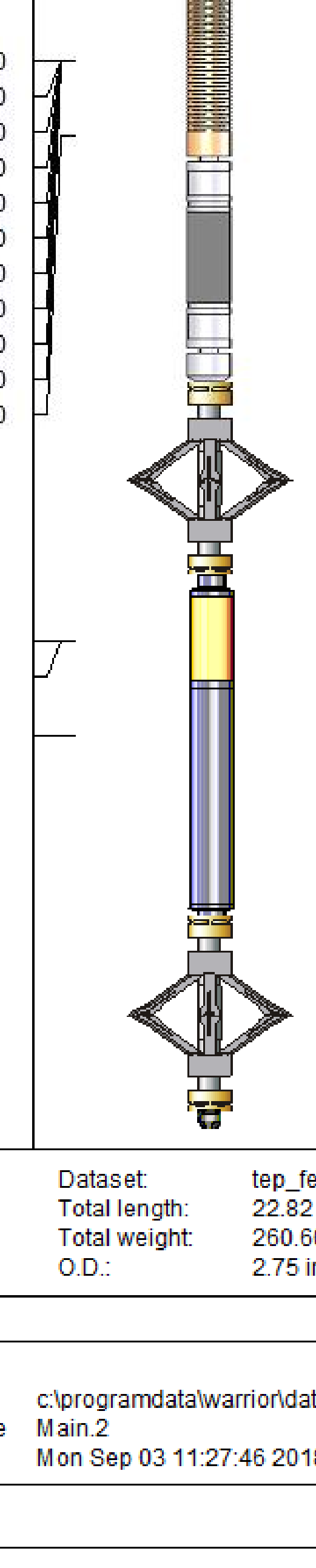
Recorded With 0 PSI Surface Induced Pressure

Database File	tep\federal pa 312-26\tep_federal pa 312-26_rbl_09-02-18.db
Dataset Pathname	Repeat.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Sep 03 11:34:24 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
CCLS2	6.42
CCLS1	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 (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 312-26_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 312-26\tep_federal pa 312-26_rbl_09-02-18.db
Dataset Pathname	Main.2
Dataset Creation	Mon Sep 03 11:27:46 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'	-0.001	0.929	0.800	81.196	86.475	0.901
CAL	-0.005	0.740				
5'	0.008	0.766	0.800	81.196	105.954	-0.010
SUM						
S1	-0.002	1.089	0.000	100.000	91.679	0.187
S2	-0.001	1.032	0.000	100.000	96.827	0.053
S3	0.001	0.913	0.000	100.000	109.680	-0.131
S4	0.002	0.838	0.000	100.000	119.584	-0.243
S5	0.004	0.830	0.000	100.000	121.110	-0.491
S6	0.004	0.866	0.000	100.000	115.967	-0.430
S7	0.001	0.926	0.000	100.000	108.033	-0.087
S8	-0.001	1.052	0.000	100.000	94.992	0.092

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 312-26
Field	Parachute
County	Garfield
State	Colorado