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OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal GM 434-5
Field	Grand Valley
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal GM 434-5
Field Grand Valley
County Garfield State Colorado
Location: API # : 05-045-22665
SEC 5 TWP 7S RGE 96W
Other Services --

Permanent Datum	Ground Level	Elevation 5977'	Elevation
Log Measured From	Kelly Bushing	24 FT	K.B. 6001'
Drilling Measured From	Kelly Bushing		D.F. 6000'
			G.L. 5977'

Date	29-OCT-2017	
Run Number	One	
Depth Driller	6916 FT	
Depth Logger	6849 FT	
Bottom Logged Interval	6844 FT	
Top Log Interval	Surface	
Open Hole Size	8.750"	
Type Fluid	Fresh Water	
Density / Viscosity	8.34 lb/gal	
Max. Recorded Temp.	211°F	
Estimated Cement Top	See Log	
Time Well Ready	ROA	
Time Logger on Bottom	13:55	
Equipment Number	HD-359	
Location	Grand Junction, CO	
Recorded By	Z.Fisher	
Witnessed By	D. Welsh	

Borehole Record / **Tubing Record**

Run Number	Bit	From	To	Size (in)	Weight (lb/ft)	From	To

Casing Record	Size (in)	Wgt (lb/ft)	Grade	Top	Bottom
Surface Casing	9 5/8	32.3	H-40	Surface	1006 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	6876 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
Ground Level 1 FT below cut pipe
Marker Joint logged at 4644 FT- 4667 FT
Log ran from 6849 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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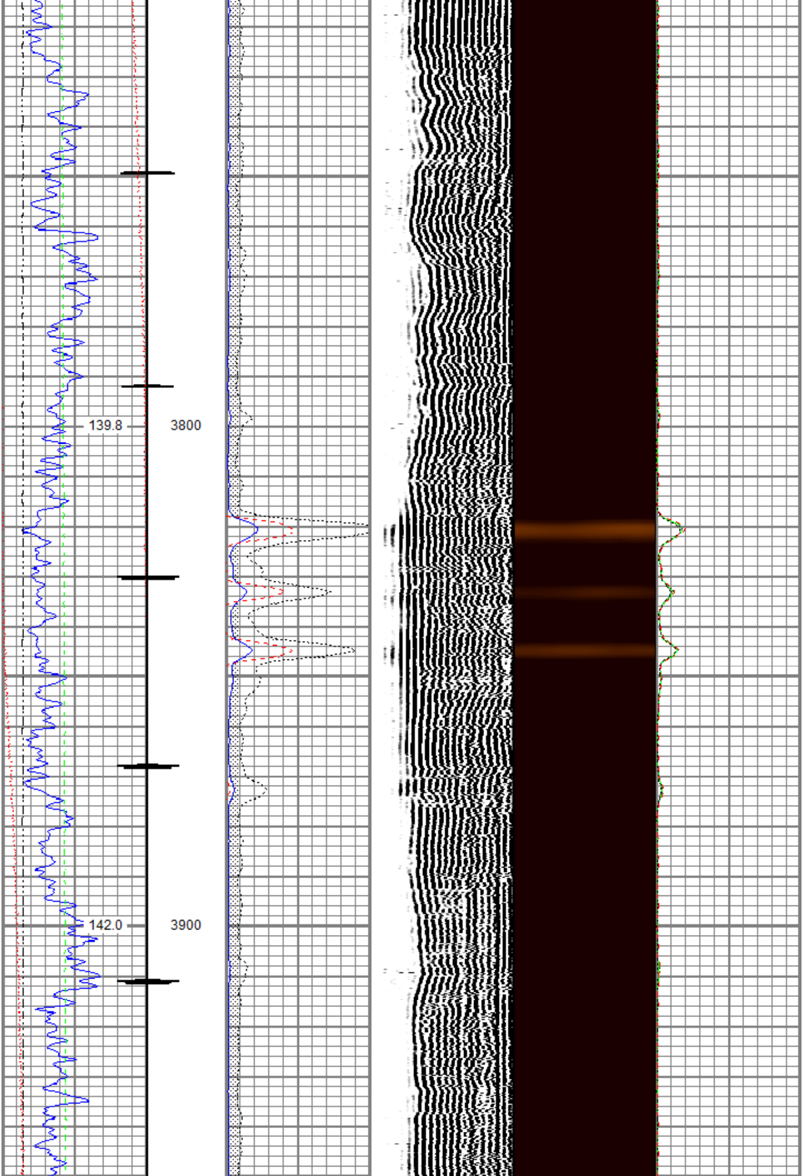
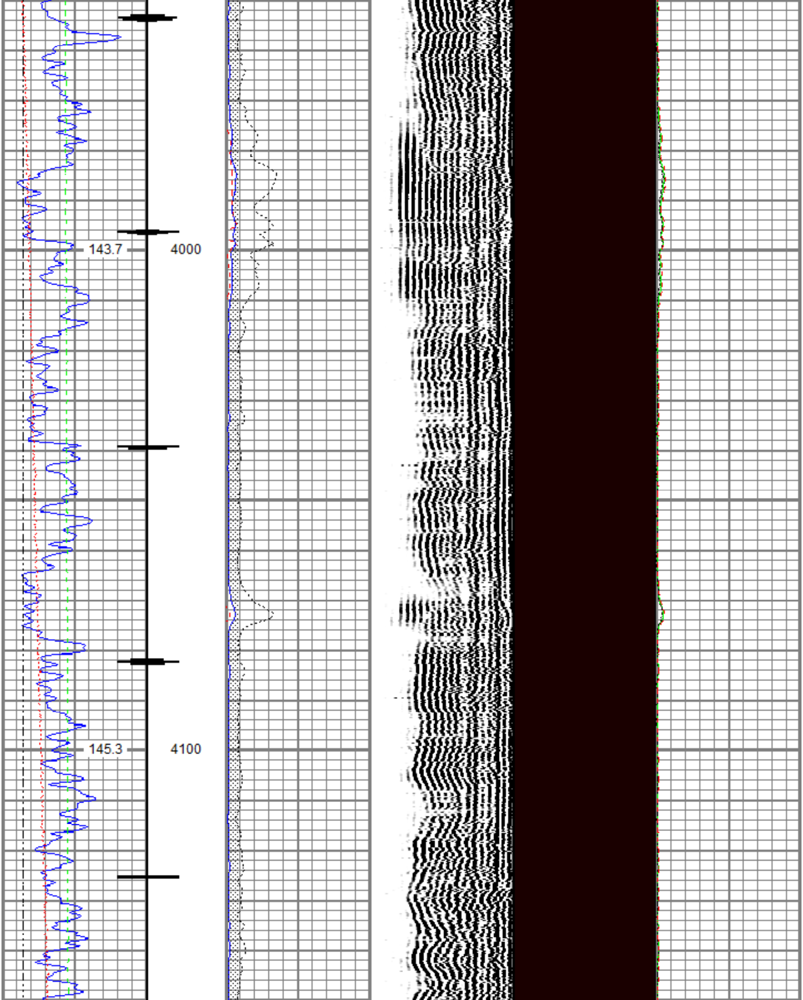
Main Pass

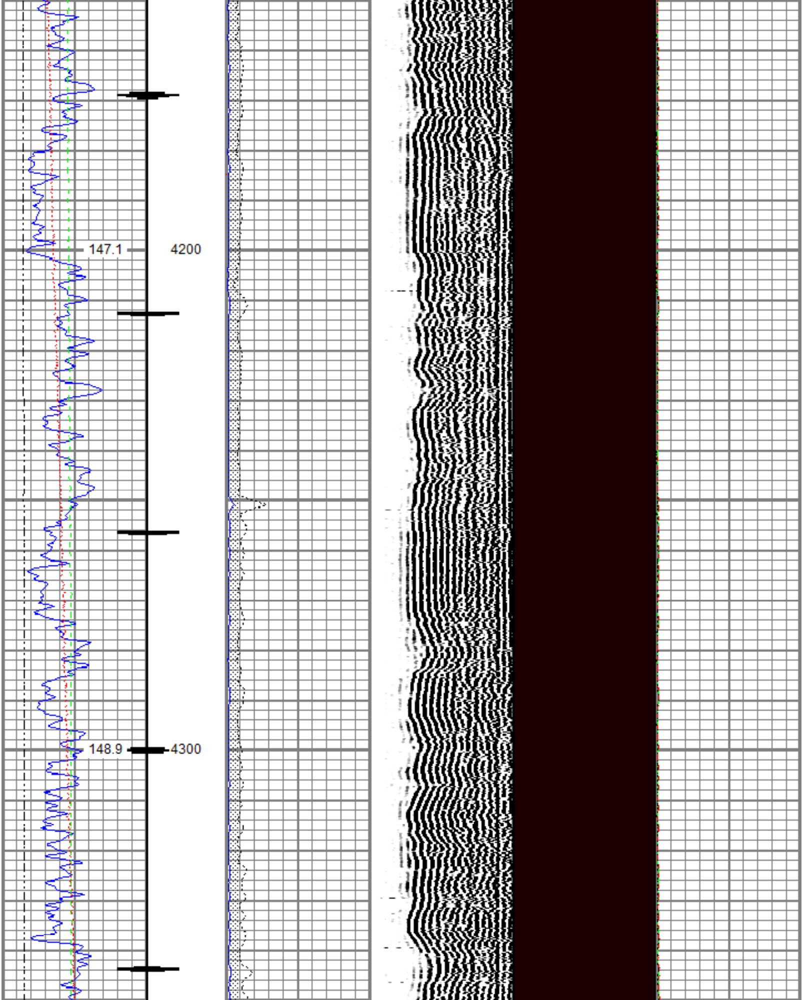
Recorded with 0 PSI Surface Induced Pressure

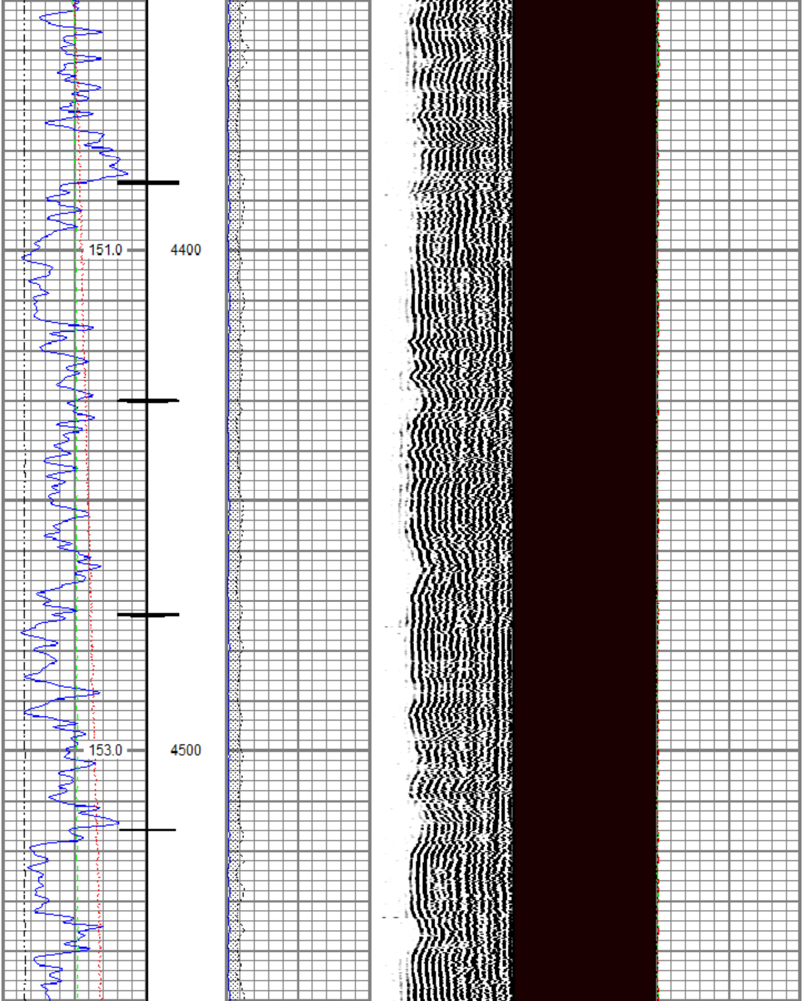
Database File	tep_federal gm 434-5_rbl_10-29-17\tep_federal gm 434-5_rbl_10-29-17.db
Dataset Pathname	Main
Presentation Format	ros_rbt004_tep
Dataset Creation	Sun Oct 29 13:55:42 2017
Charted by	Depth in Feet scaled 1:240

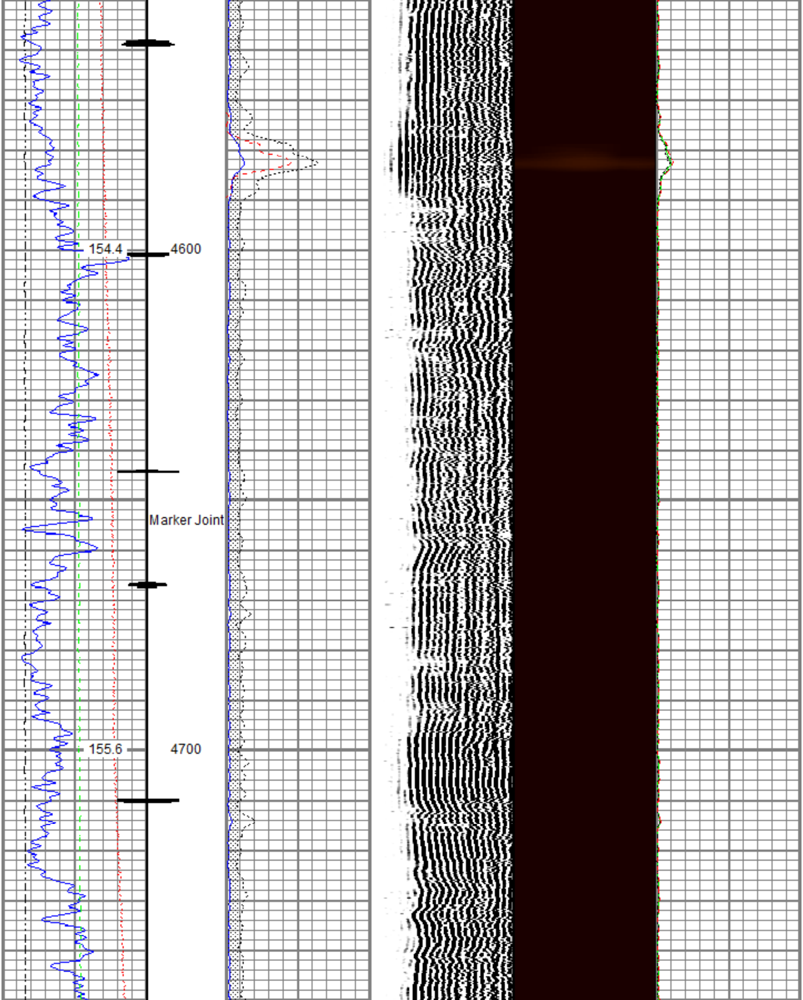
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 1200	10 110	0 150
Casing Collar Locator		3' Amplitude x 5			Mimimum Amplitude
Line Speed		0 (mV) 20			0 150
-150 (ft/min) 150		3' Travel Time			Maximum Amplitude
Line Tension		300 (usec) 200			0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

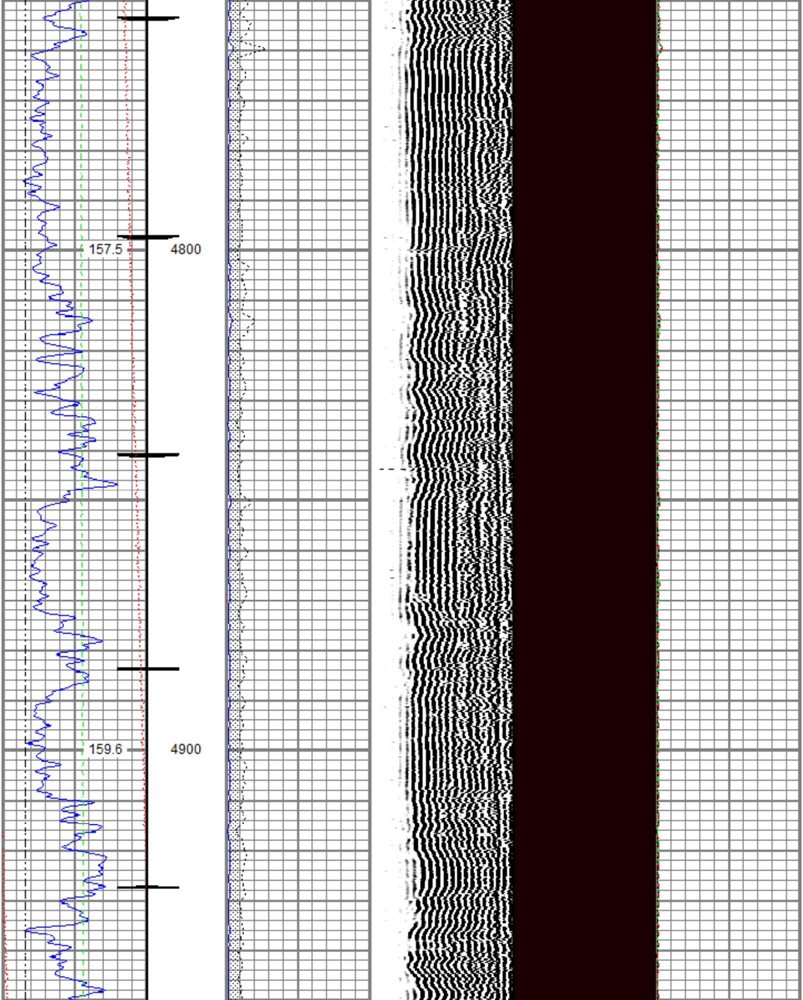


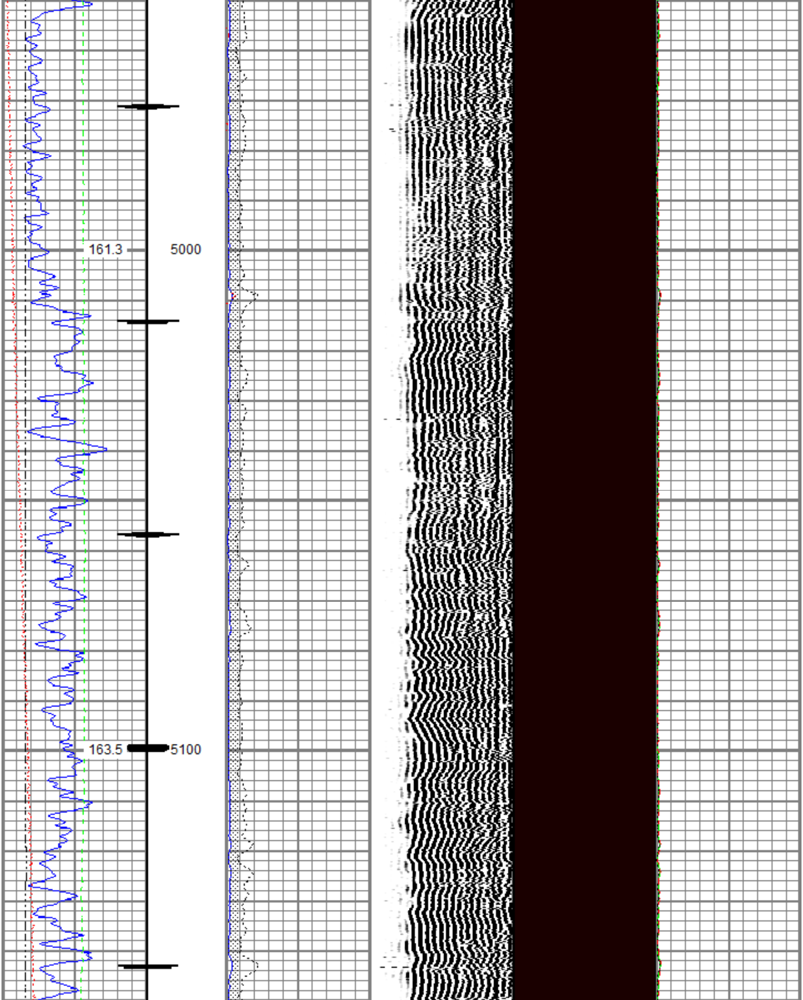


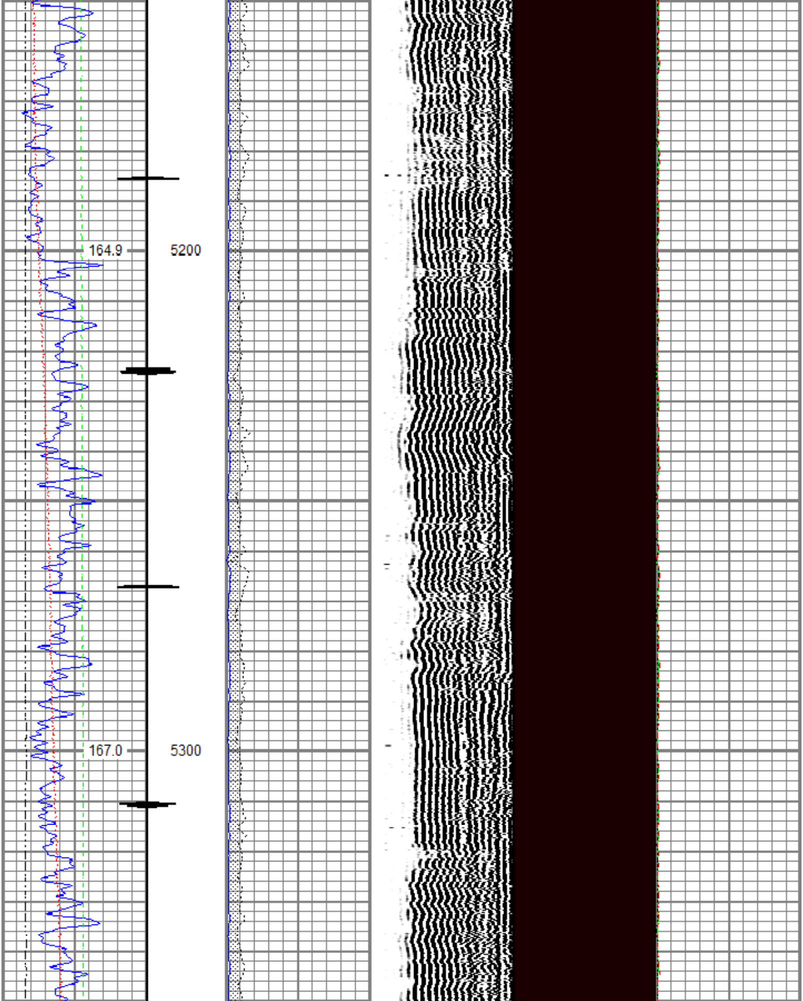


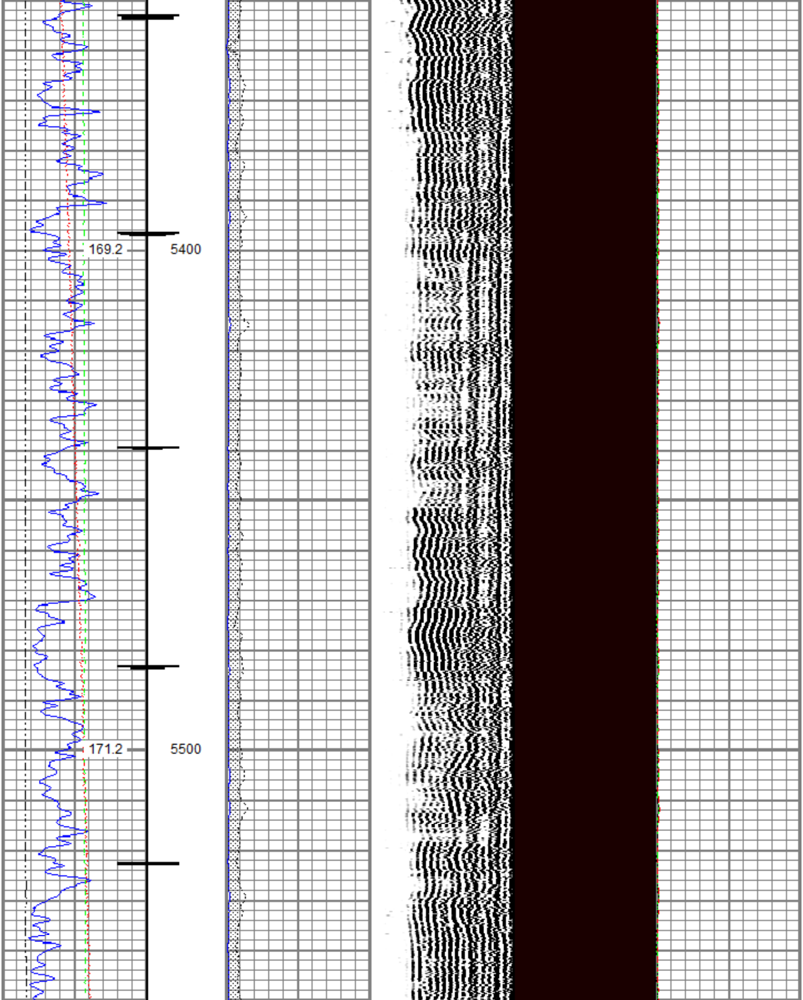


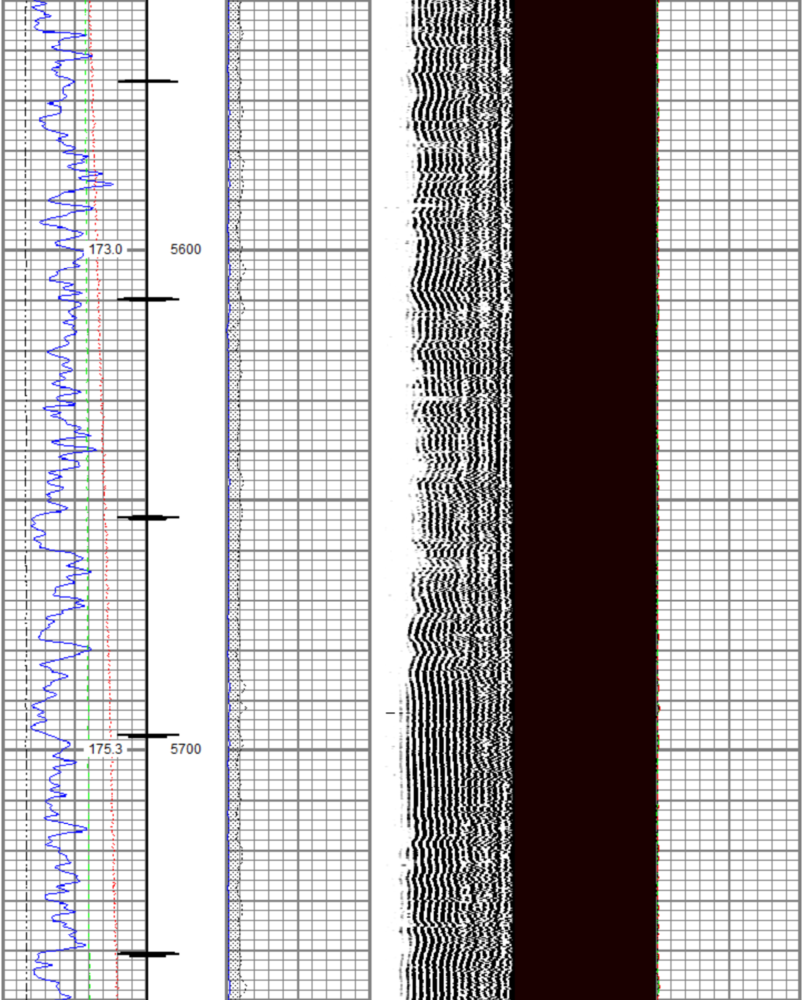


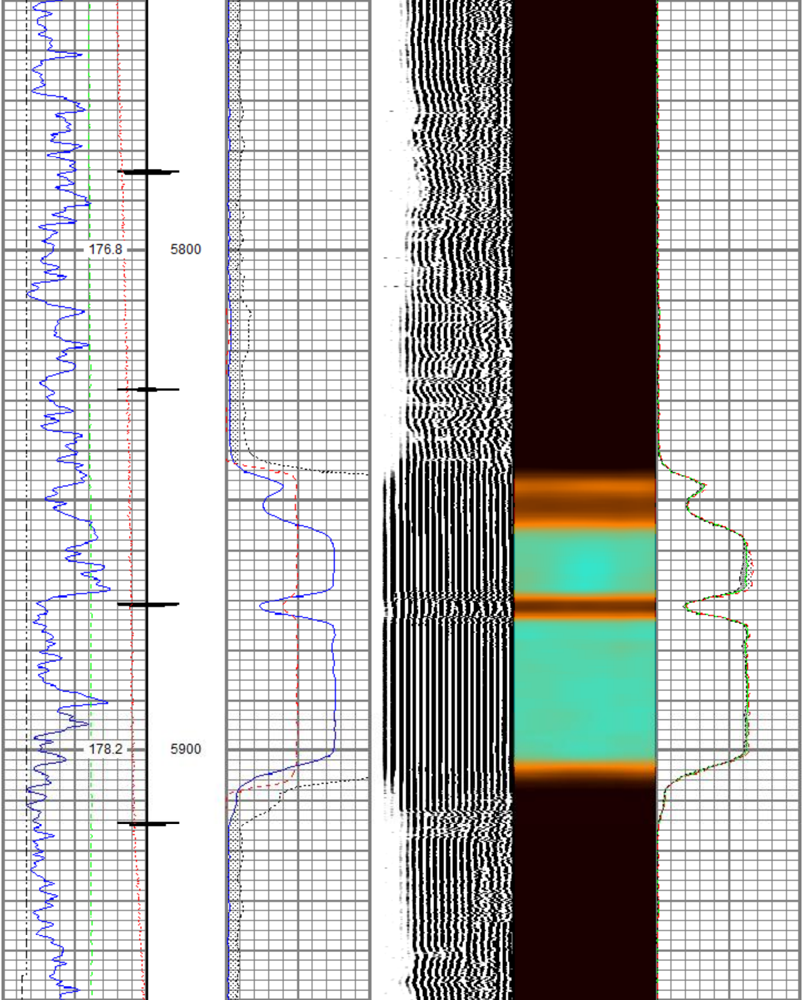


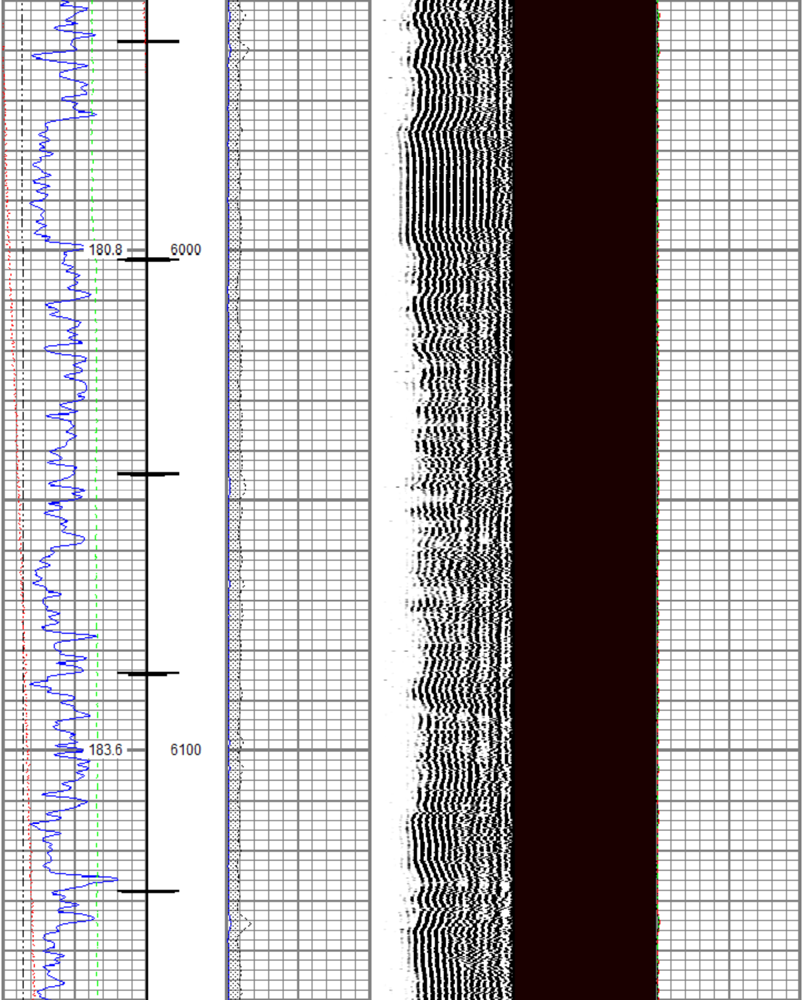


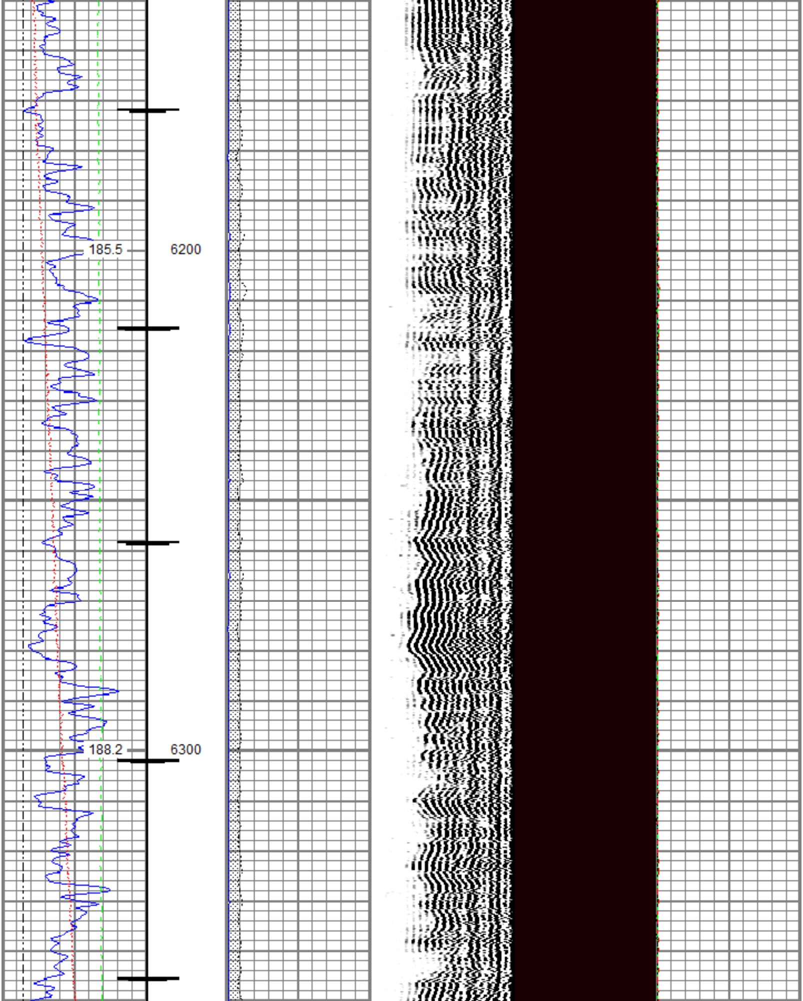


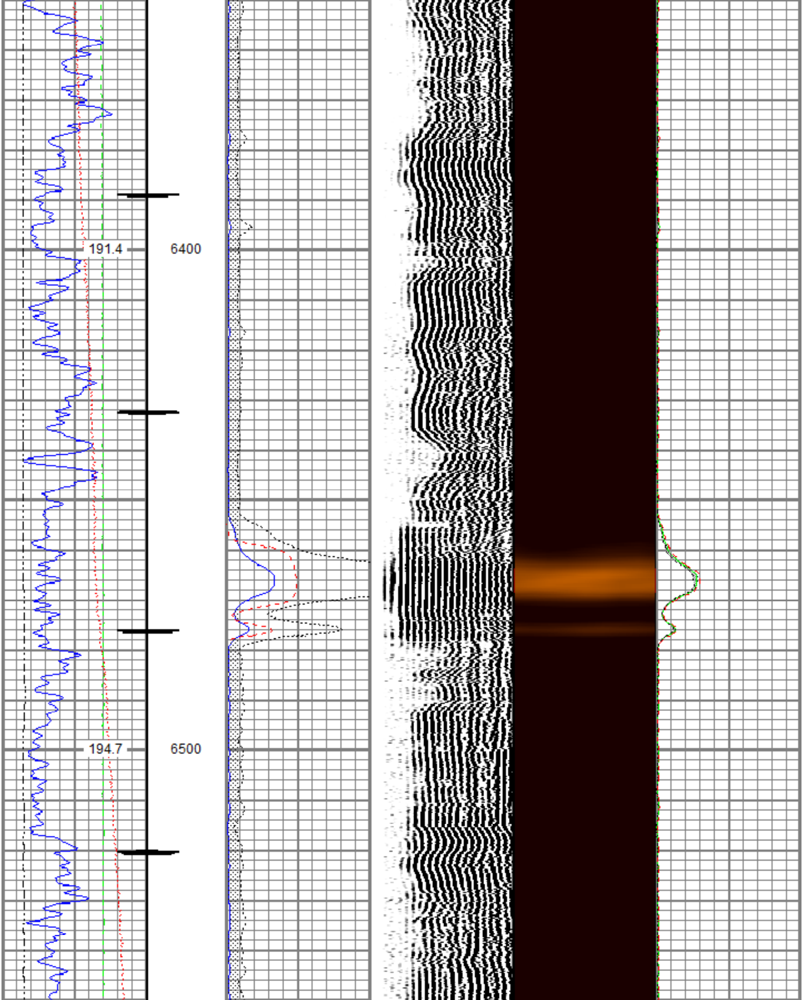


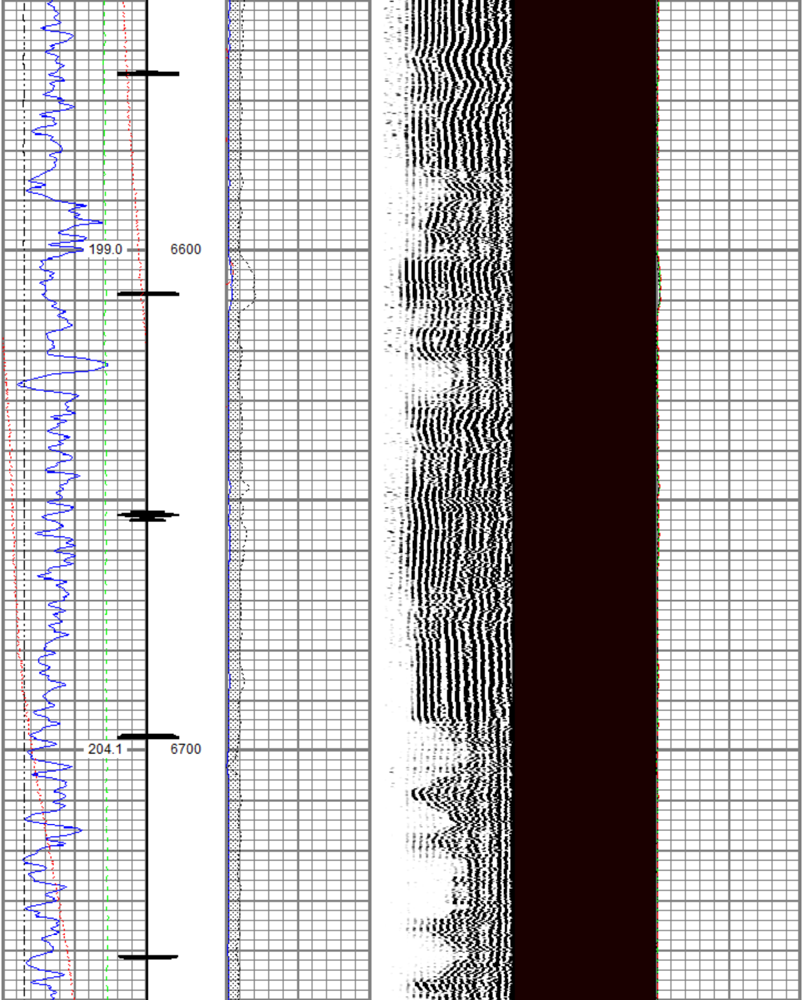


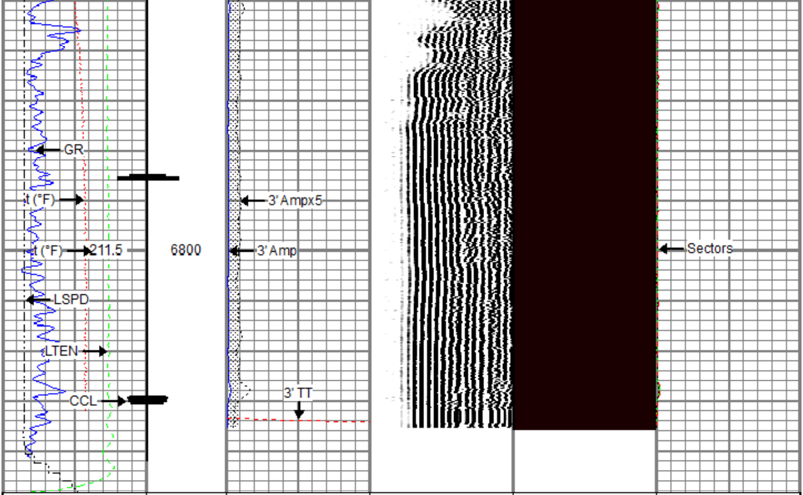












Gamma Ray 0 (GAPI) 200		3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map 10 110	Average Amplitude 0 150
Casing Collar Locator		3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Speed -150 (ft/min) 150		3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Line Tension 0 (lb)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

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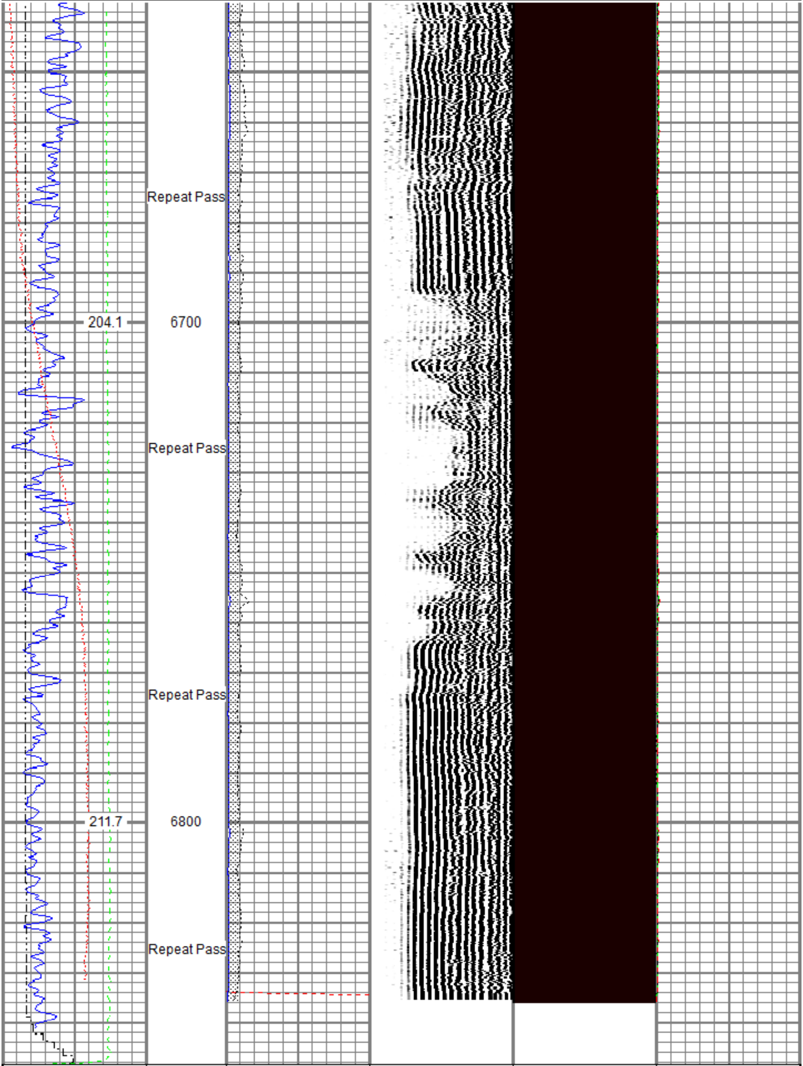
Repeat Pass

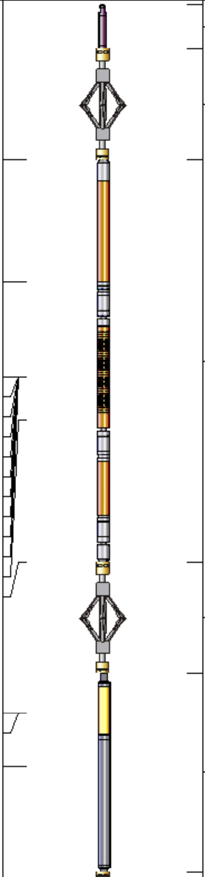
Recorded with 0 PSI Surface Induced Pressure

Database File	tep_federal gm 434-5_rbl_10-29-17\tep_federal gm 434-5_rbl_10-29-17.db
Dataset Pathname	Repeat
Presentation Format	ros_rbt004_tep
Dataset Creation	Sun Oct 29 13:52:30 2017
Charted by	Depth in Feet scaled 1:240

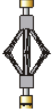
Gamma Ray 0 (GAPI) 200		3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map 10 110	Average Amplitude 0 150
Line Speed -150 (ft/min) 150		3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000		3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Temperature 0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



Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-1 Electric Cable Head with 1" Fishing Neck	1/11.03	1.69	5.40
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
HeadVolt	18.84					
Temp	16.05					
			Probe_RADII-C-P_RBT_2750 (FW1305- Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	099.19	2.75	105.00
WVFS8	13.88					
WVFS7	13.88					
WVFS6	13.88					
WVFS5	13.88					
WVFS4	13.88					
WVFS3	13.88					
WVFS2	13.88					
WVFS1	13.88					
WVFCAL	13.88					
WVF3FT	13.88					
WVF5FT	12.88					
HEADVOLT	9.63					
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
DCCL	6.18					
CCL	6.18					
GR	4.96					
			Probe_GR_CCL-P_CGR_2750_S (FW1 Probe 2-3/4" Digital CCL / Gamma Ray Combined	214.541)	2.75	55.00

		DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00

Dataset: TEP_Federal GM 434-5_RBL_10-29-17.db: field/well/run1/Main
Total length: 22.40 ft
Total weight: 261.40 lb
O.D.: 2.75 in

Calibration Report

Database File C:\ProgramData\Warrior\Data\TEP_Federal GM 434-5_RBL_10-29-17\TEP_Federal GM 434-5_RBL_10-29-
Dataset Pathname Main
Dataset Creation Sun Oct 29 13:55:42 2017

Gamma Ray Calibration Report

Serial Number:	FW1211-081	
Tool Model:	P_CGR_2750_S	
Performed:	Sat Feb 06 11:31:52 2016	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.6	cps
Sensitivity:	0.6061	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1305-098	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	32.746	ft

Master Calibration, performed Sun Oct 29 06:58:07 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.002	0.852	0.800	81.196	94.152	1.023
CAL	0.755	0.829				
5'	0.001	0.697	0.800	81.196	115.407	0.741
SUM						
S1	-0.008	0.871	0.000	100.000	113.779	0.904
S2	-0.005	0.907	0.000	100.000	109.658	0.542
S3	-0.006	0.913	0.000	100.000	108.799	0.622
S4	-0.006	0.896	0.000	100.000	110.854	0.624
S5	-0.006	0.867	0.000	100.000	114.617	0.652
S6	-0.006	0.840	0.000	100.000	118.238	0.677
S7	-0.006	0.824	0.000	100.000	120.511	0.728
S8	-0.005	0.823	0.000	100.000	120.655	0.655

Internal Reference Calibration, performed Fri May 05 10:29:14 2017:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.755	0.829	1.000	0.000

Air Zero Calibration, performed Sun Oct 29 06:56:42 2017:

	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

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Company	TEP Rocky Mountain LLC
Well	Federal GM 434-5
Field	Grand Valley
County	Garfield
State	Colorado