RELIANCE OILFIELD SERVICES

Radial Cement Bond Gamma Ray Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 33-26
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 33-26
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23720
2120' FSL & 2476' FWL NESW
SEC 26 TWP 6S RGE 95W
Other Services: ---

		Elevation	
Permanent Datum	Ground Level	Elevation 5637'	K.B. 5661'
Log Measured From	Kelly Bushing	24 FT	D.F. 5660'
Drilling Measured From	Kelly Bushing		G.L. 5637'

Date	22-MAY-2018
Run Number	One
Depth Driller	8517 FT
Depth Logger	8398 FT
Bottom Logged Interval	8384 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	231°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	18:52
Equipment Number	HD-0359
Location	Grand Junction, CO
Recorded By	A. Ellsworth
Witnessed By	D. Welsh

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	32.3	H-40	Surface	1124 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8475 FT
Intermediate #2					
Liner					

<<< Fold Here >>>

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 4397 FT - 4418 FT
Log ran from 8398 FT to Surface
Log ran with 0 PSI Surface Induced Pressure

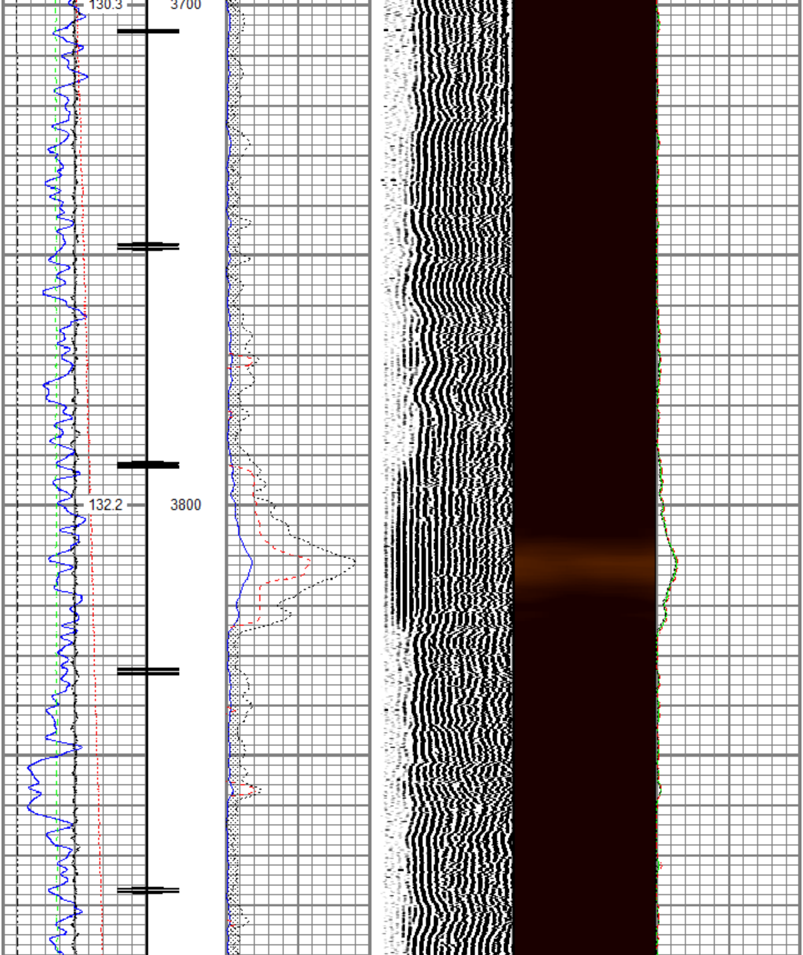
Thank you for choosing Reliance Oilfield Services, LLC!!

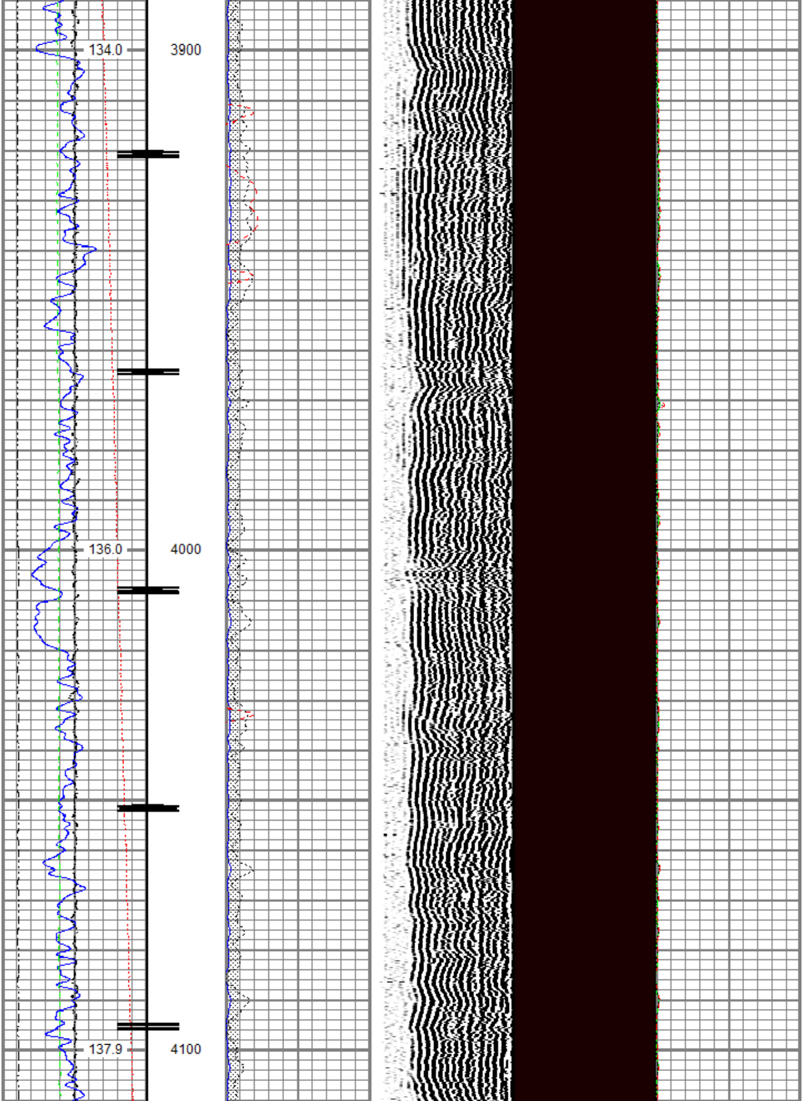
RELIANCE OILFIELD SERVICES

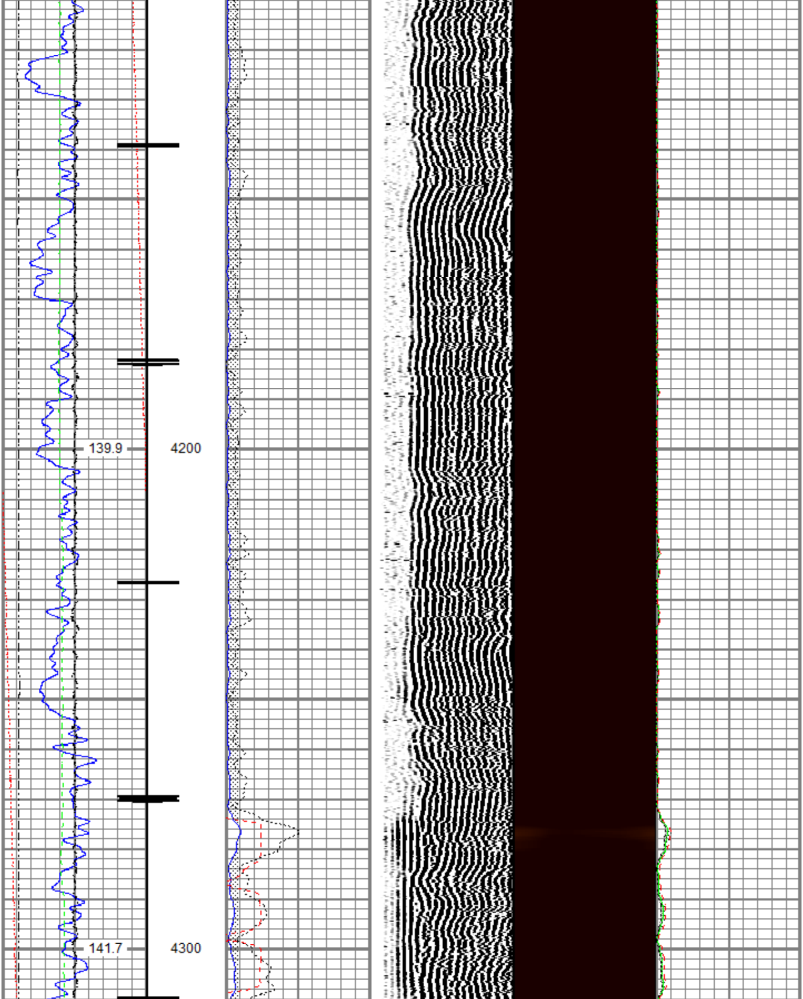
Main Pass

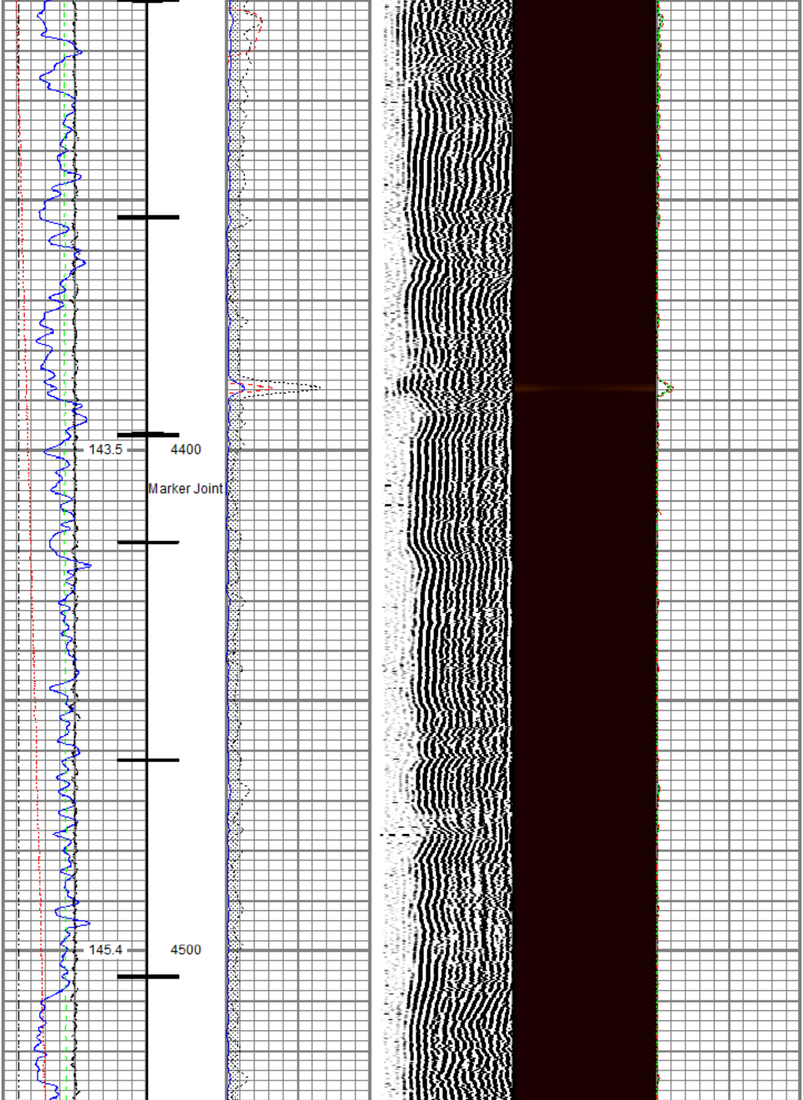
Recorded with 0 PSI Surface Induced Pressure

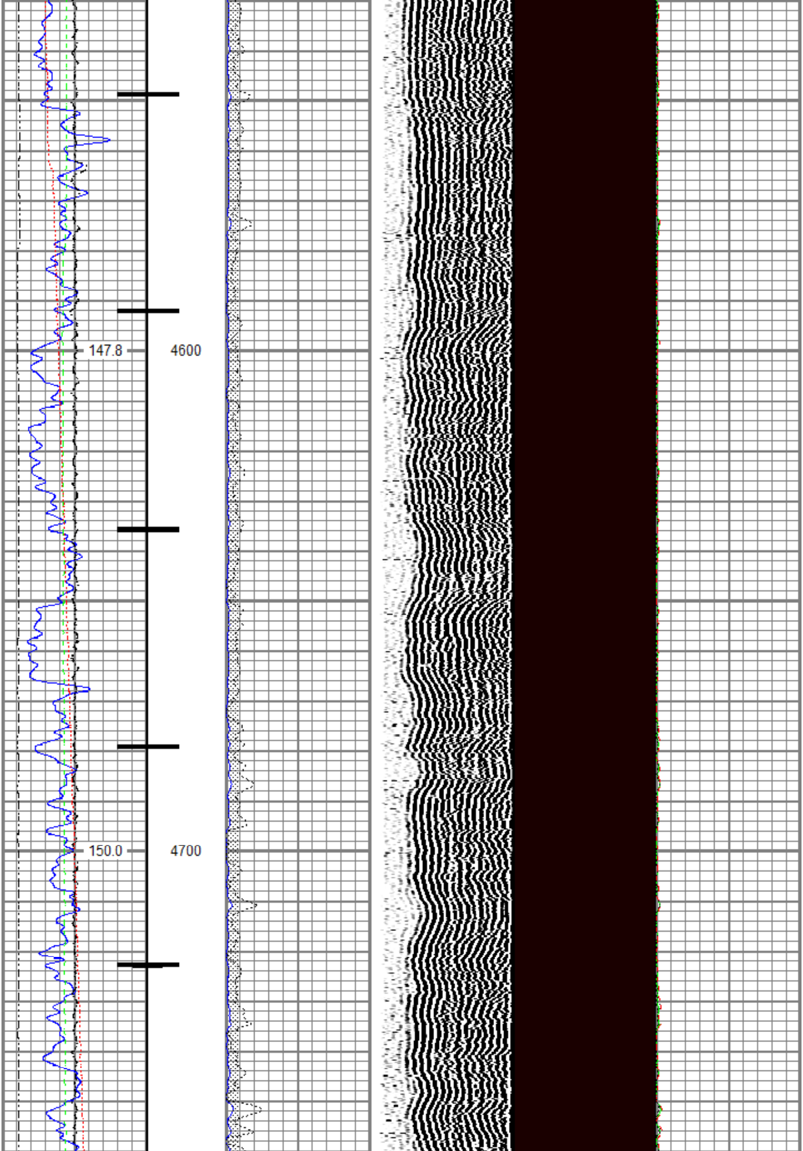
Database File	tep_federal pa 33-26_rbl_05-22-18\tep_federal pa 33-26_rbl_05-22-18.db
Dataset Pathname	main
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue May 22 19:51:54 2018
Charted by	Depth in Feet scaled 1:240

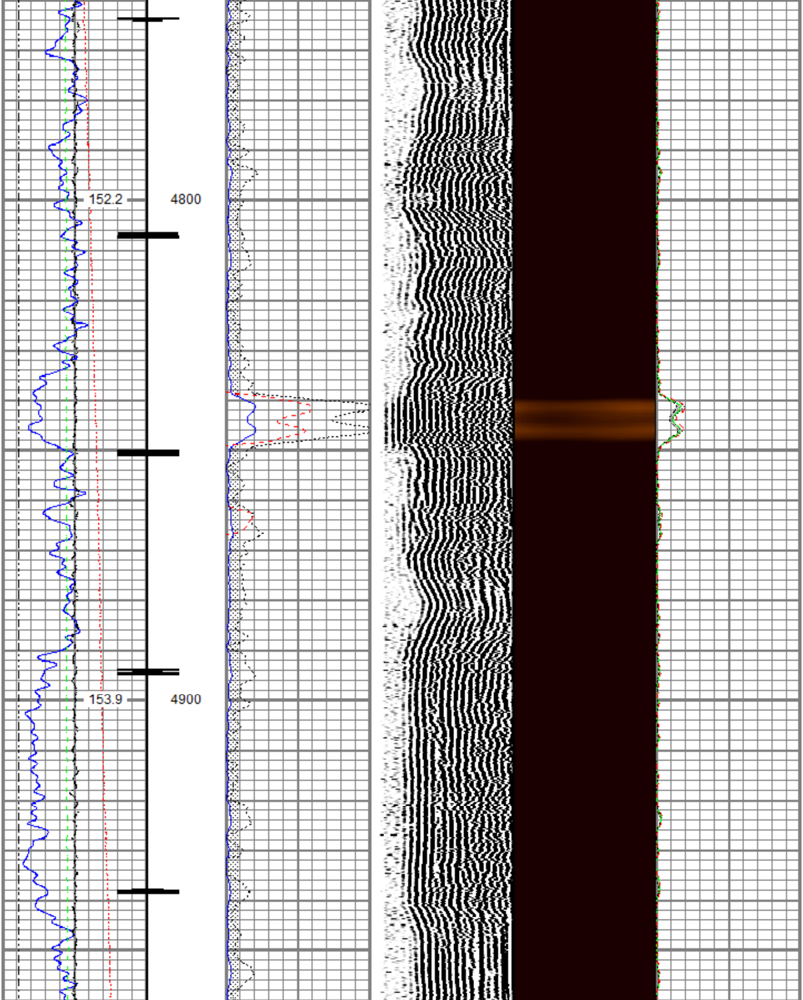

130.3
3700
132.2
3800

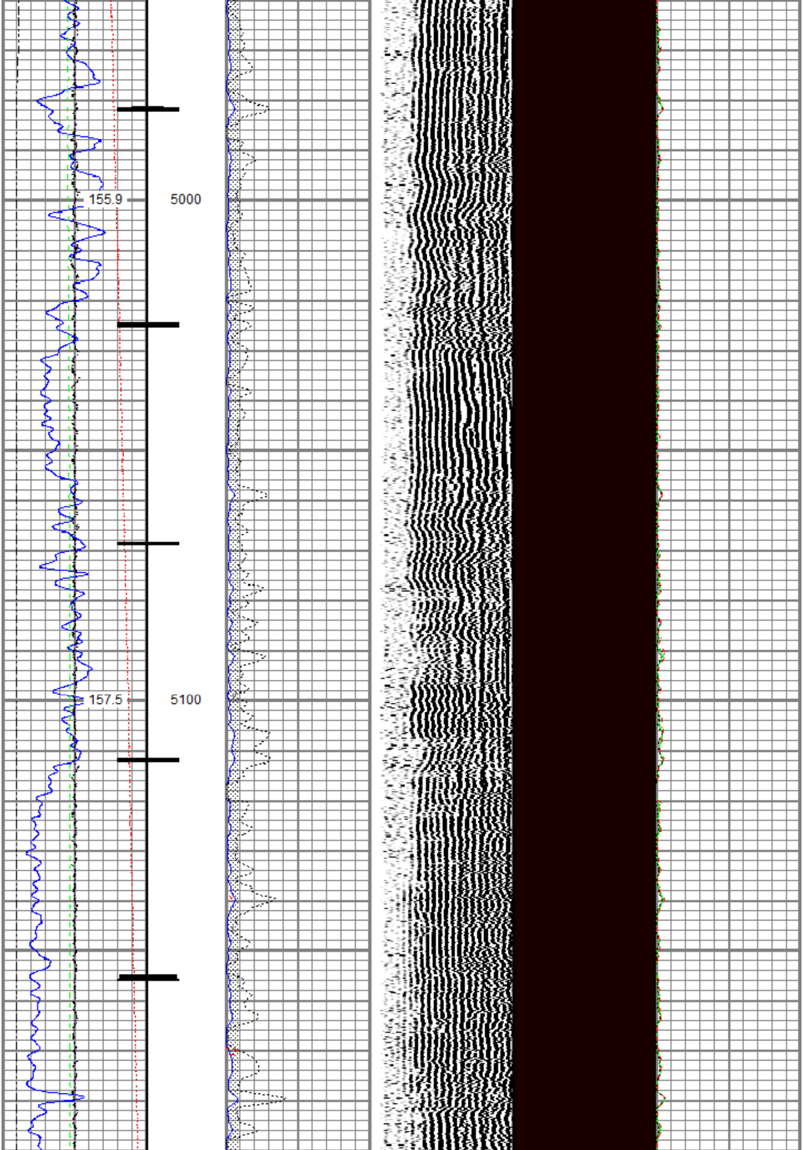

134.0
3900
136.0
4000
137.9
4100


139.9
4200
141.7
4300

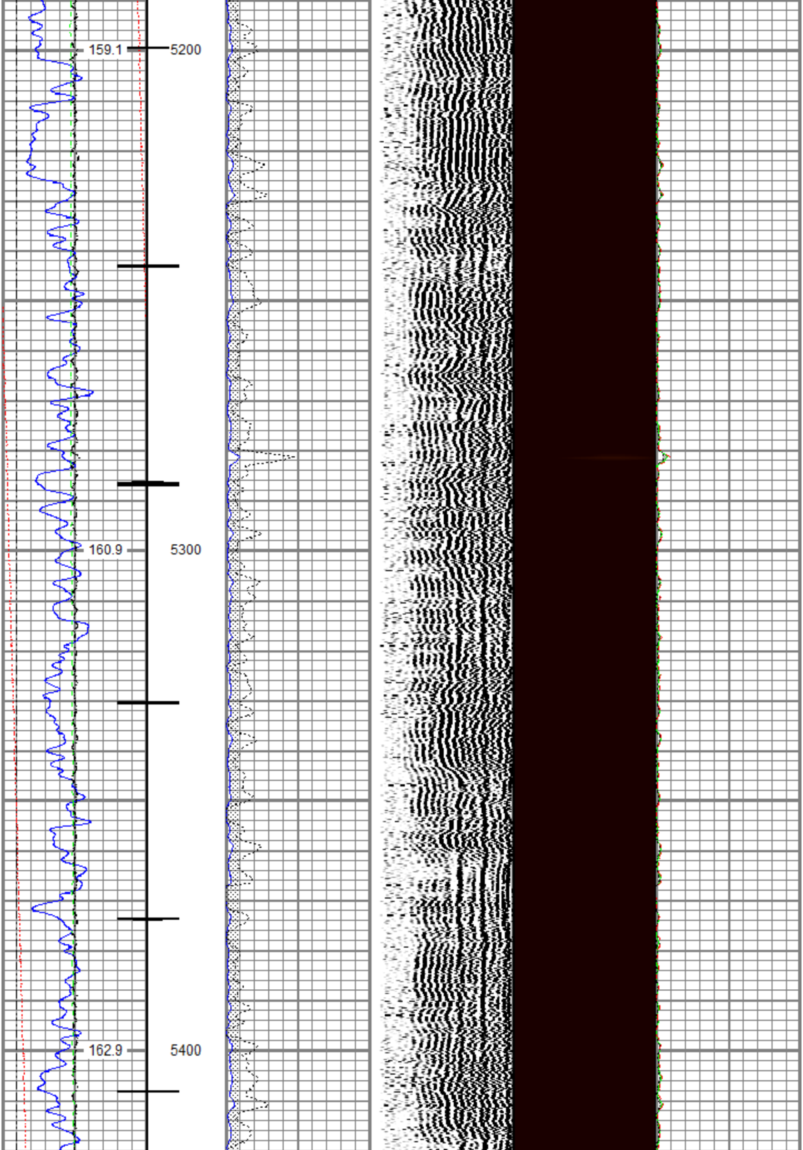

143.5
4400
Marker Joint
145.4
4500

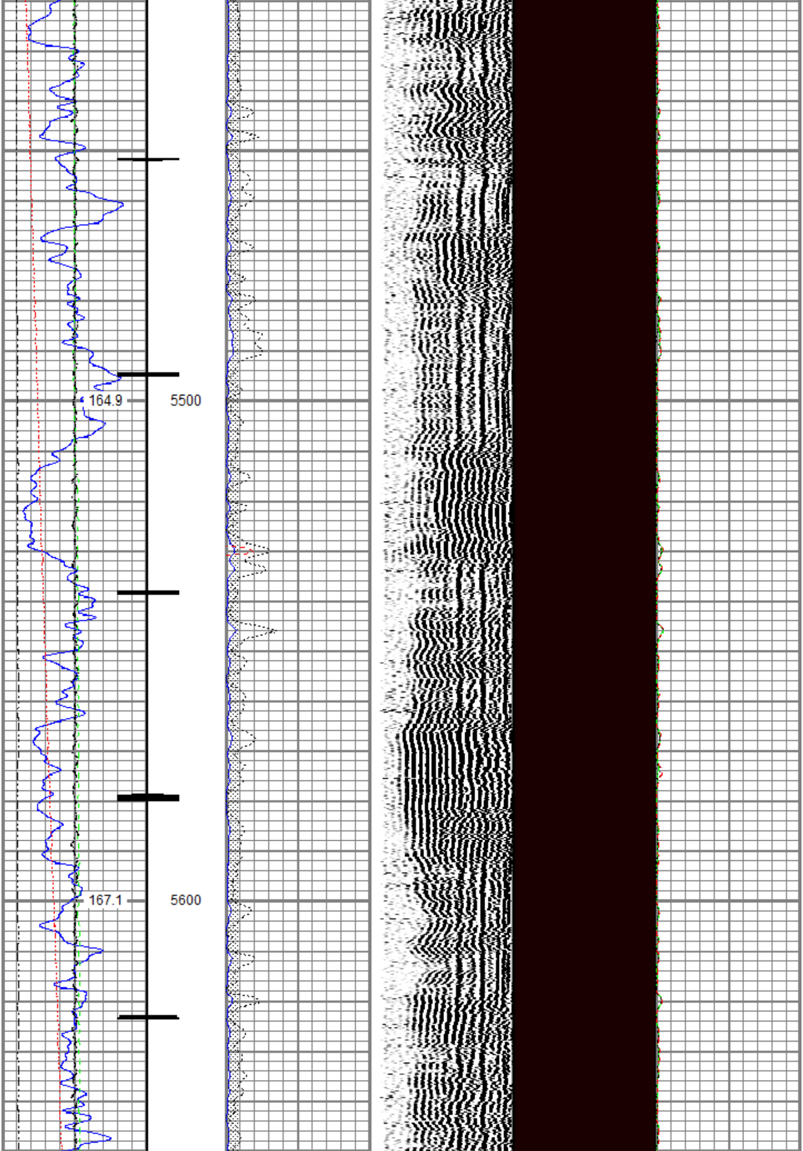

147.8
4600
150.0
4700

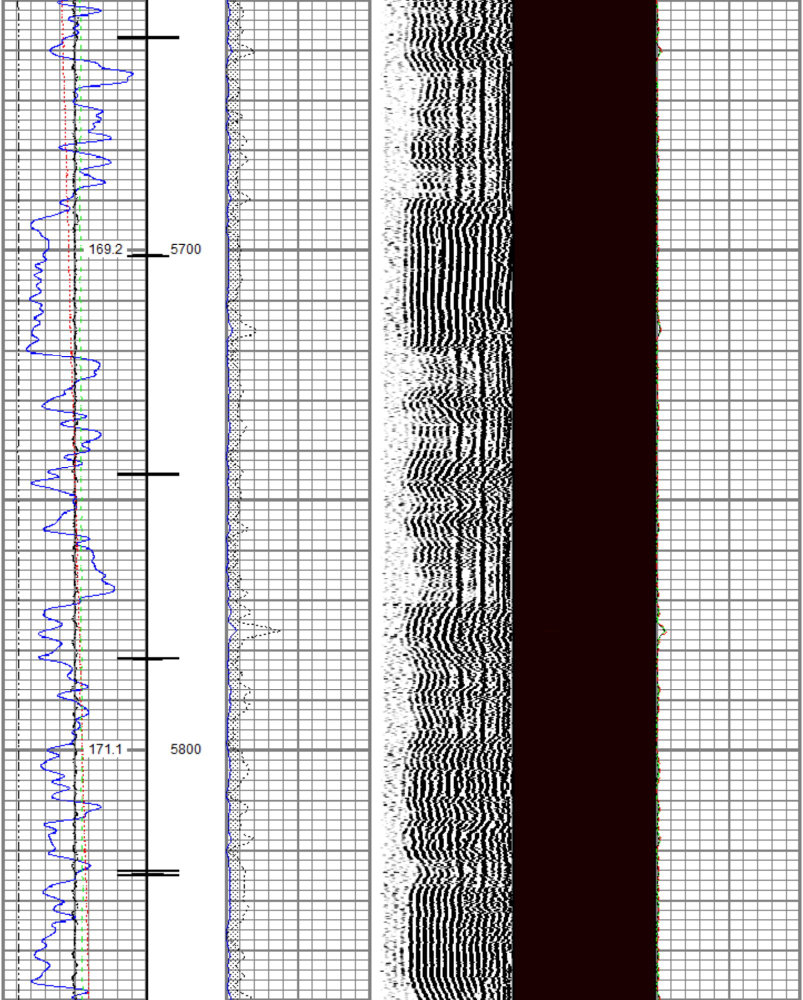

152.2
4800
153.9
4900

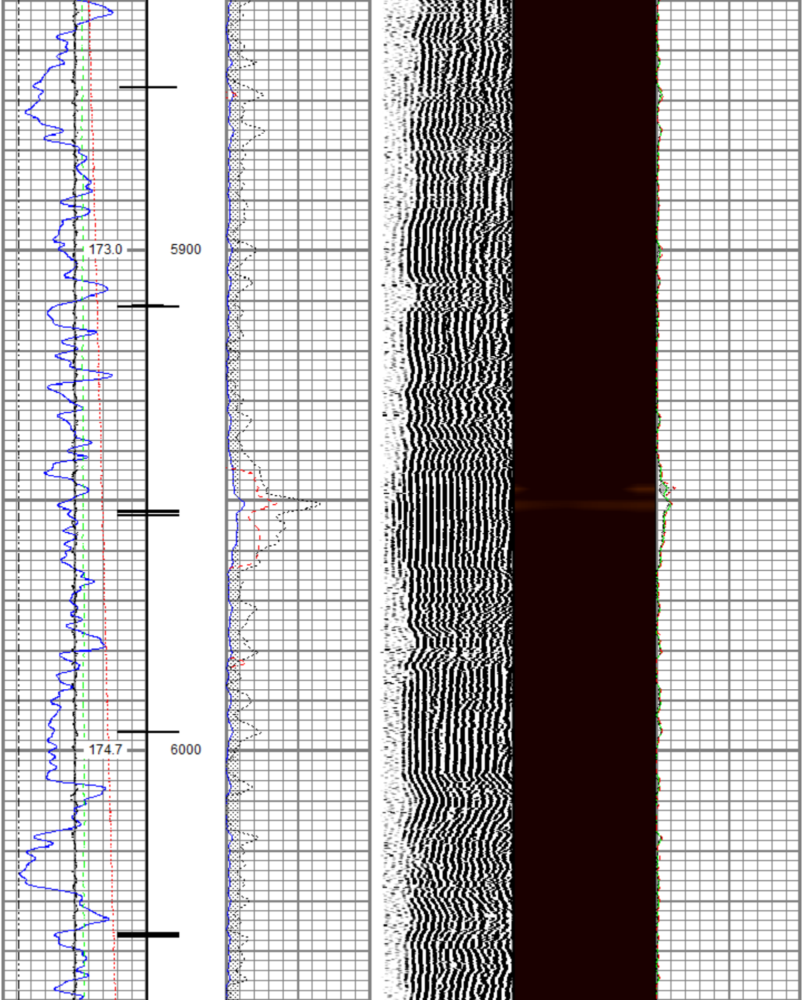


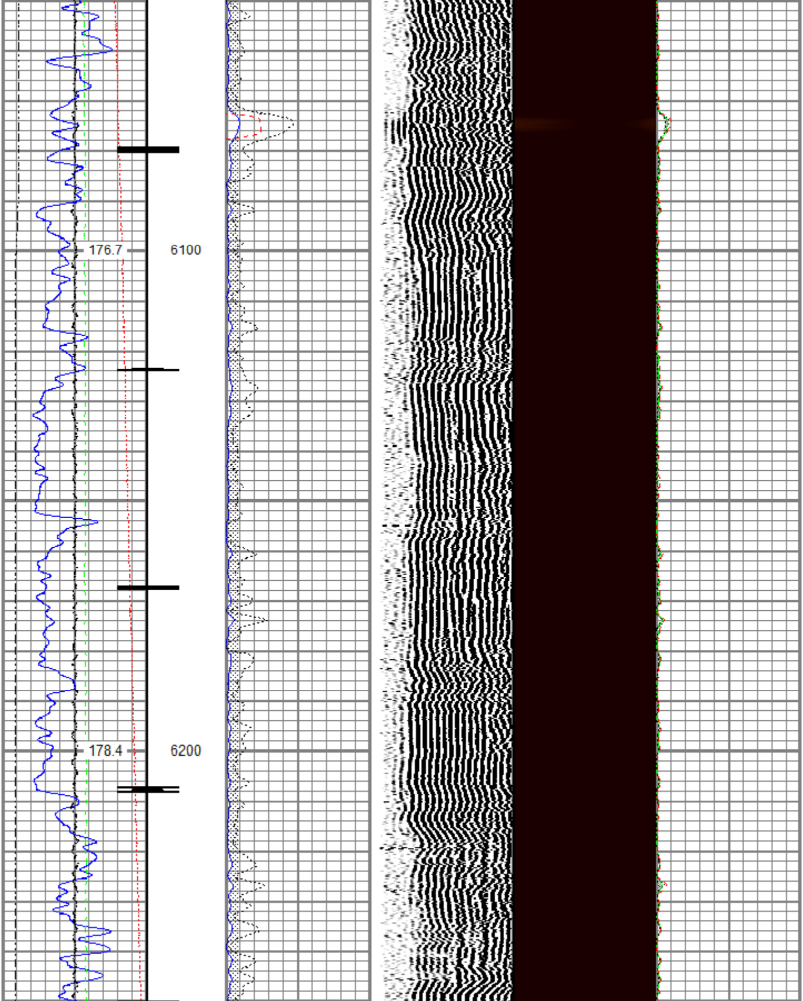
155.9
5000
157.5
5100

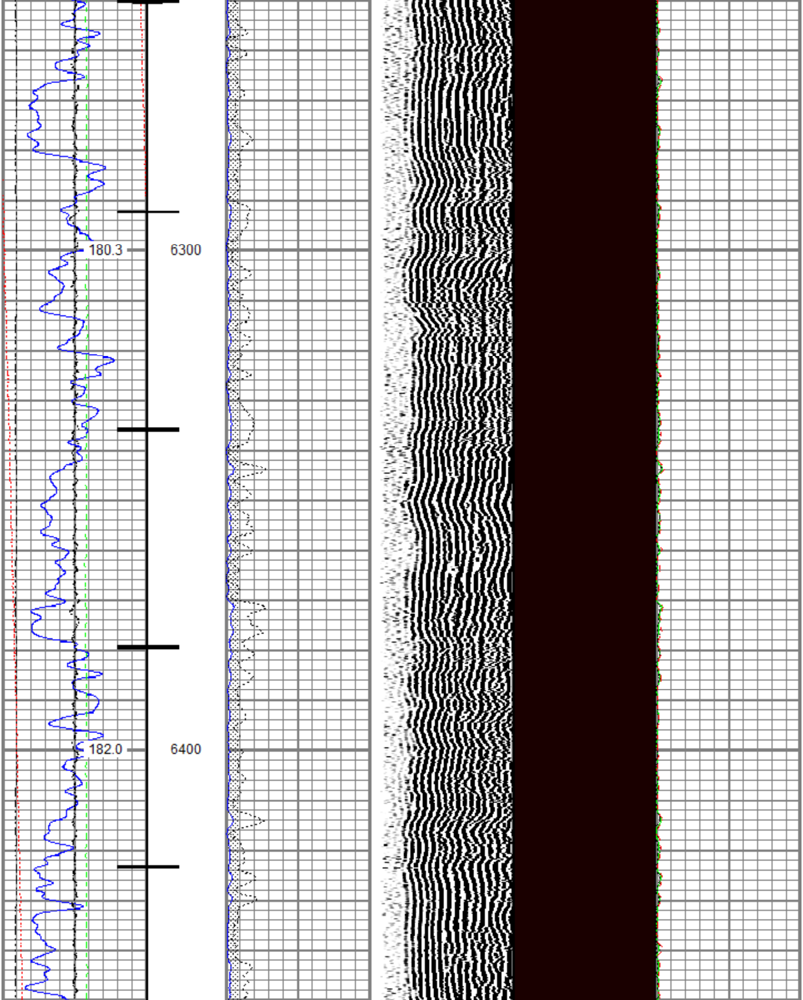

159.1
5200
160.9
5300
162.9
5400

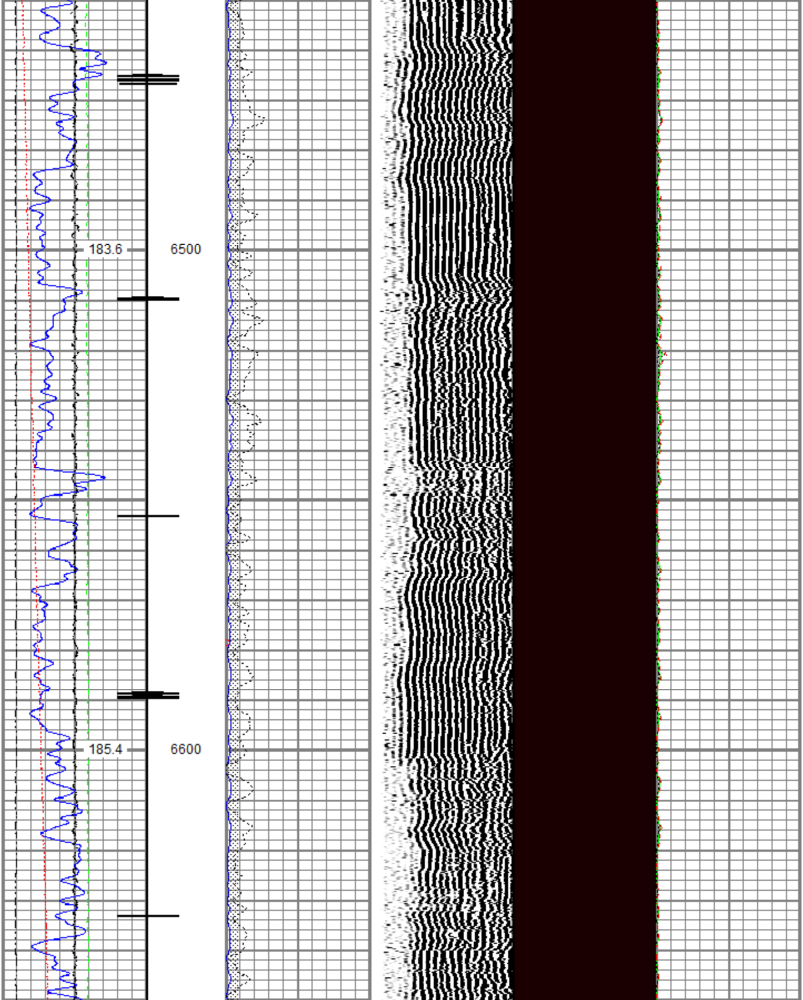

164.9
5500
167.1
5600

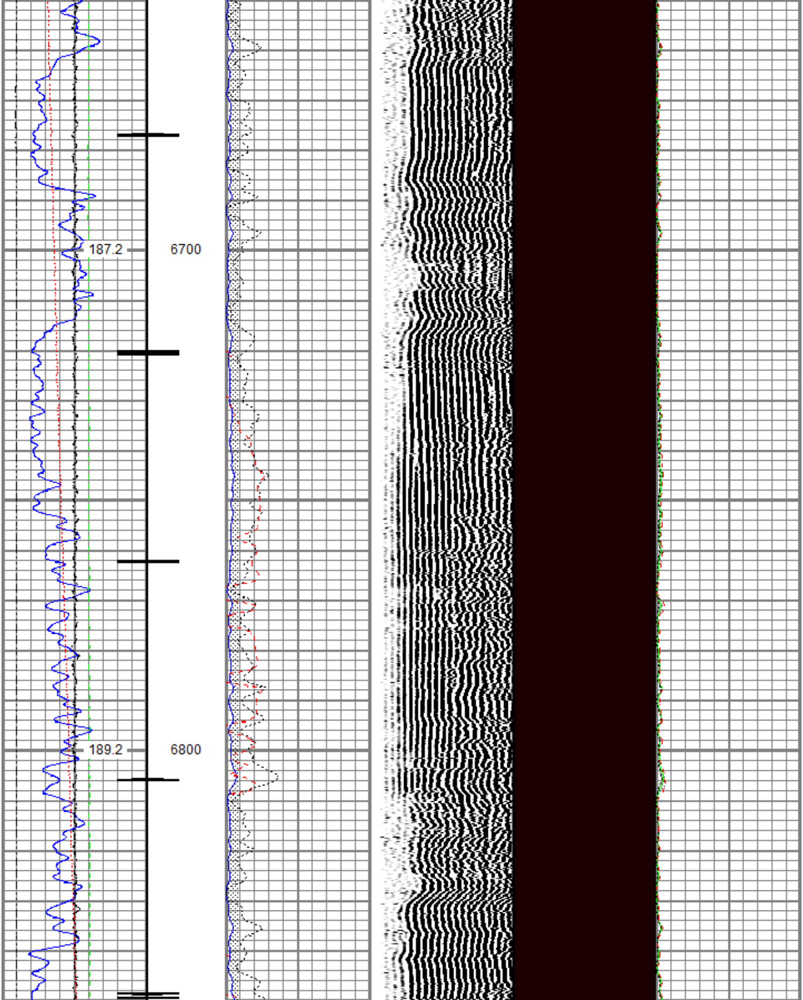

169.2
5700
171.1
5800

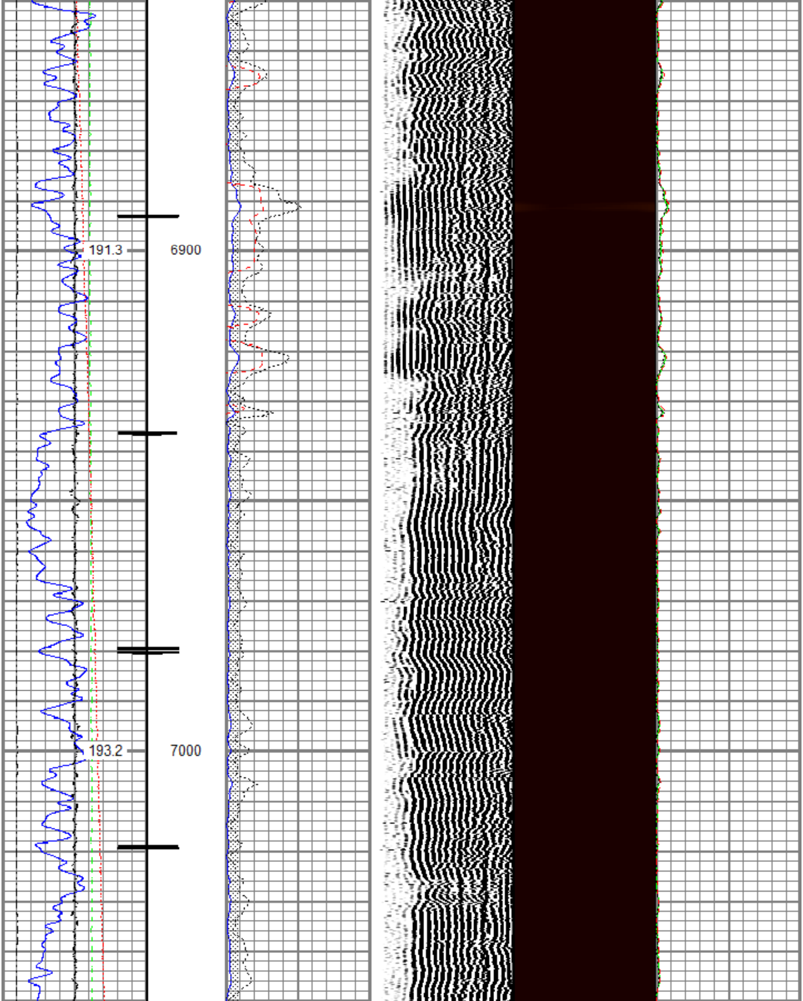

173.0
5900
174.7
6000

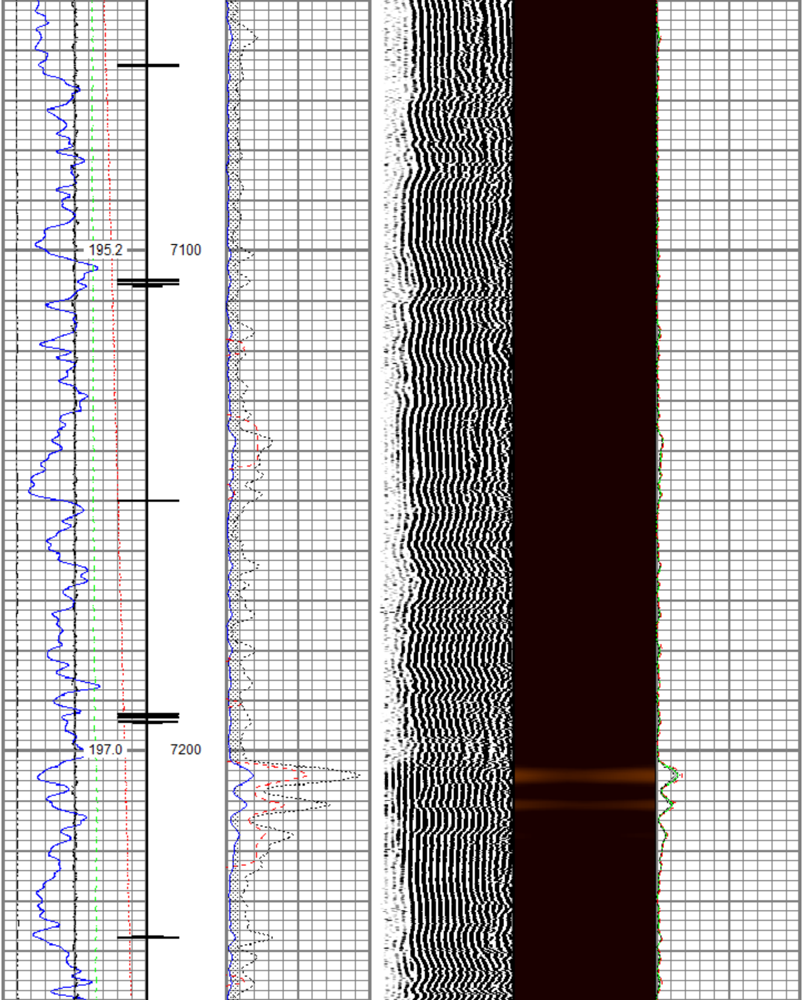

176.7
6100
178.4
6200

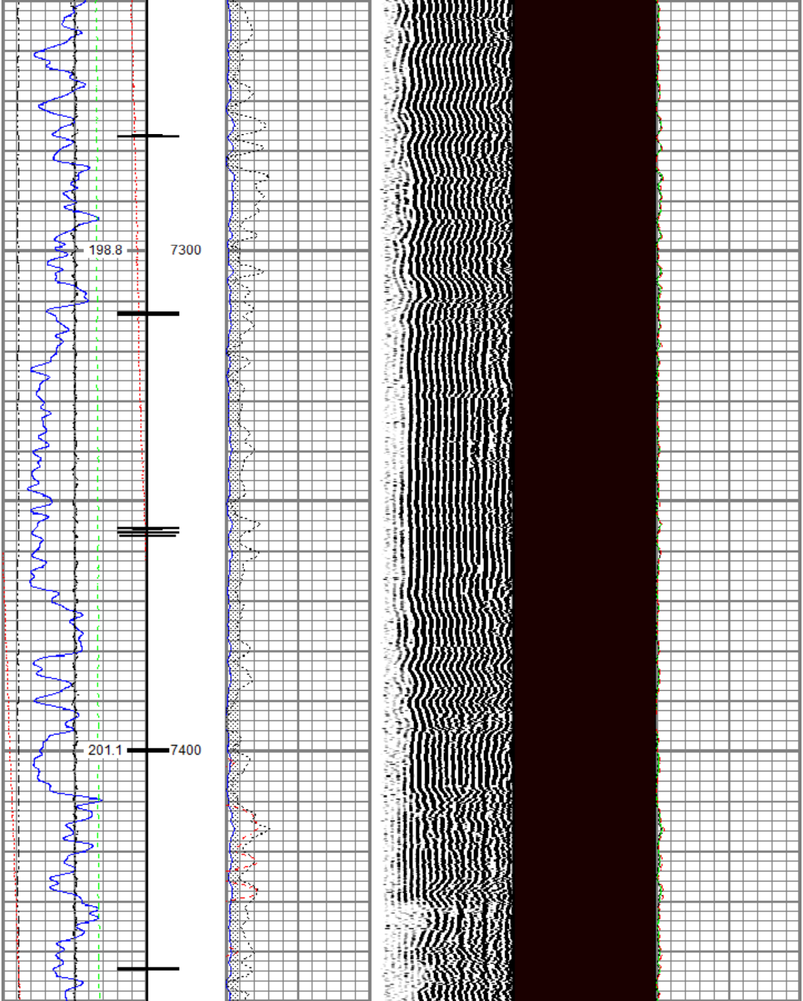

180.3
6300
182.0
6400

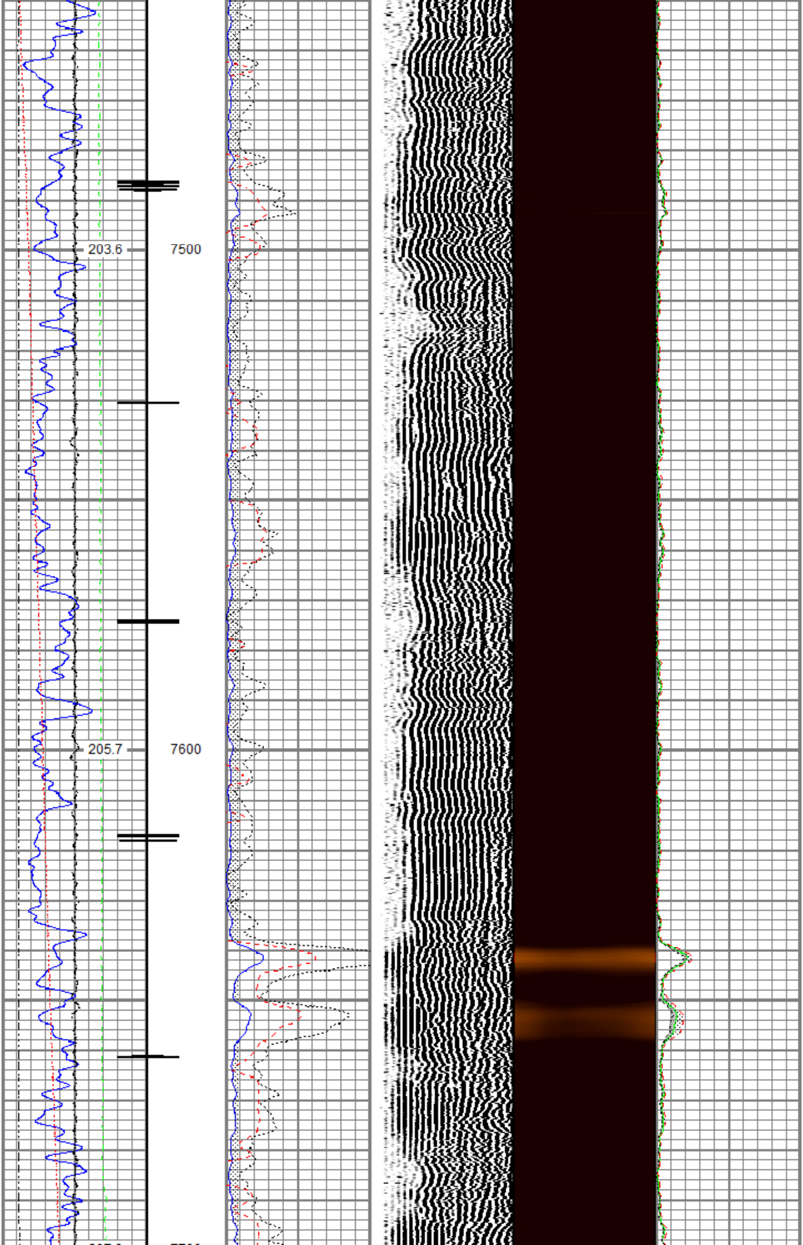

183.6
6500
185.4
6600


187.2
6700
189.2
6800


191.3
6900
193.2
7000


195.2
7100
197.0
7200


198.8
7300
201.1
7400

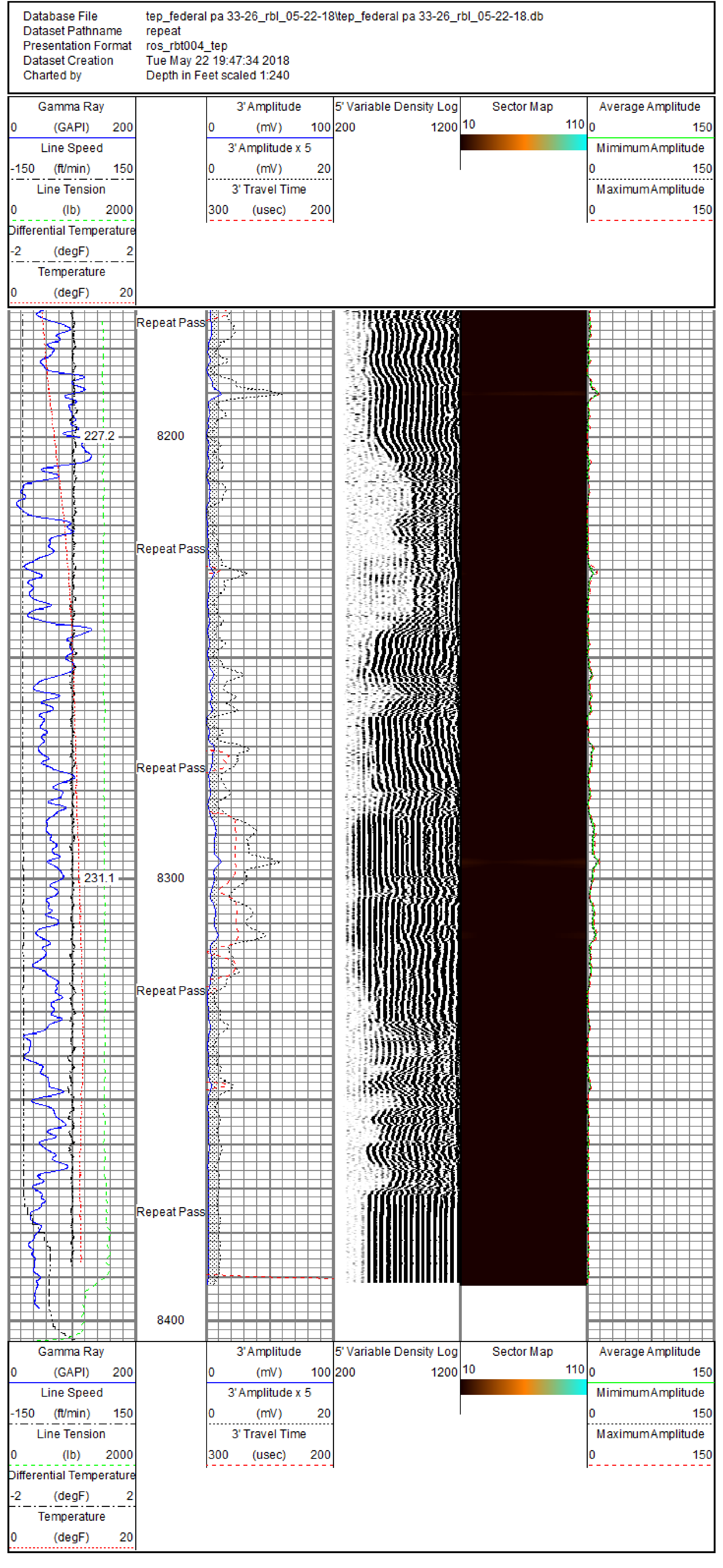

203.6
7500
205.7
7600

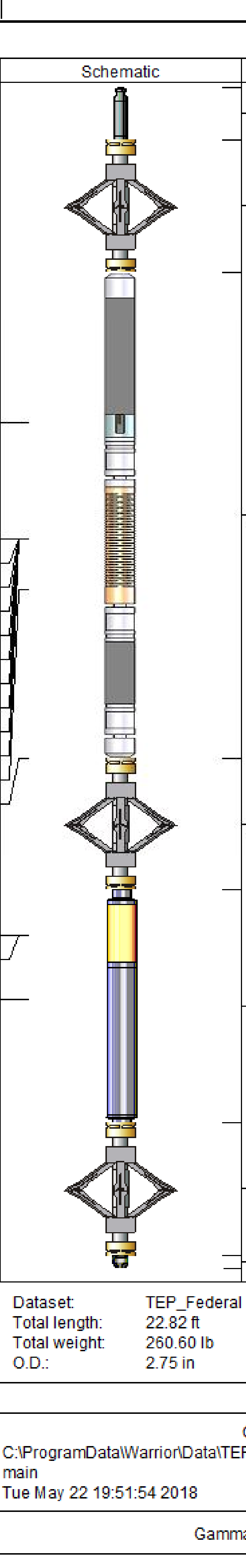
RELIANCE
OILFIELD SERVICES

Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_federal pa 33-26_rbl_05-22-18\tep_federal pa 33-26_rbl_05-22-18.db
Dataset Pathname	repeat
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue May 22 19:47:34 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
HEADVOLT	9.85
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 (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 33-26_RBL_05-22-18.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 33-26_RBL_05-22-18\TEP_Federal PA 33-26_RBL_05-22-1
Dataset Pathname	main
Dataset Creation	Tue May 22 19:51:54 2018

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 11:44:12 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:	33.469	ft

Master Calibration, performed Tue May 22 12:59:42 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.003	0.730	0.800	81.196	109.742	1.100
CAL	-0.005	0.742				
5'	0.006	0.596	0.800	81.196	136.247	0.043
SUM						
S1	-0.000	0.741	0.000	100.000	134.974	0.016
S2	-0.001	0.751	0.000	100.000	132.948	0.093
S3	-0.002	0.749	0.000	100.000	133.203	0.247
S4	-0.003	0.727	0.000	100.000	137.082	0.368
S5	-0.003	0.688	0.000	100.000	144.574	0.477
S6	-0.002	0.671	0.000	100.000	148.419	0.368
S7	-0.001	0.702	0.000	100.000	142.267	0.191
S8	-0.001	0.732	0.000	100.000	136.408	0.188

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.005	0.742	1.000	0.000

Air Zero Calibration, performed Tue May 22 13:00:06 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.003	0.000	-0.000
5'	0.005	0.000	0.000
SUM			
S1	-0.001	0.000	0.001
S2	-0.001	0.000	0.001
S3	-0.002	0.000	0.001
S4	-0.003	0.000	0.001
S5	-0.003	0.000	0.000
S6	-0.003	0.000	0.000
S7	-0.001	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 12:24:58 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

Company	TEP Rocky Mountain LLC
Well	Federal PA 33-26
Field	Parachute
County	Garfield
State	Colorado