RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 532-26
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 532-26
Field Parachute
County Garfield State Colorado

Location: API #: 05-045-23707
SEC 26 TWP 6S RGE 95W

Other Services
--

Permanent Datum Ground Level Elevation 5637'
Log Measured From Kelly Bushing 24 FT
Drilling Measured From Kelly Bushing

Elevation
K.B. 5661'
D.F. 5660'
G.L. 5637'

Date	04-JUN-2018
Run Number	One
Depth Driller	8541 FT
Depth Logger	8446 FT
Bottom Logged Interval	8432 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	232°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	17:35
Equipment Number	HD-0359
Location	Grand Junction, CO
Recorded By	Z. Fisher
Witnessed By	Dustin 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	1125 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8500 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 4528 - 4550 FT
Log ran from 8446 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

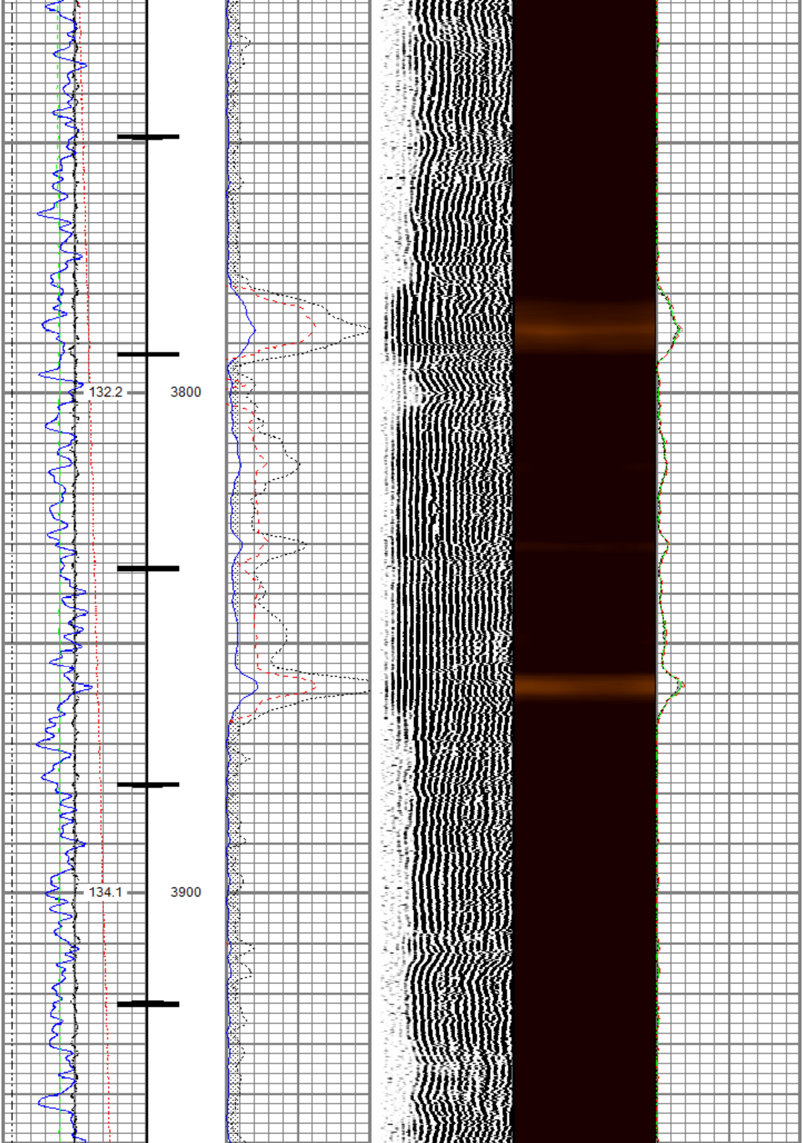
RELIANCE OILFIELD SERVICES

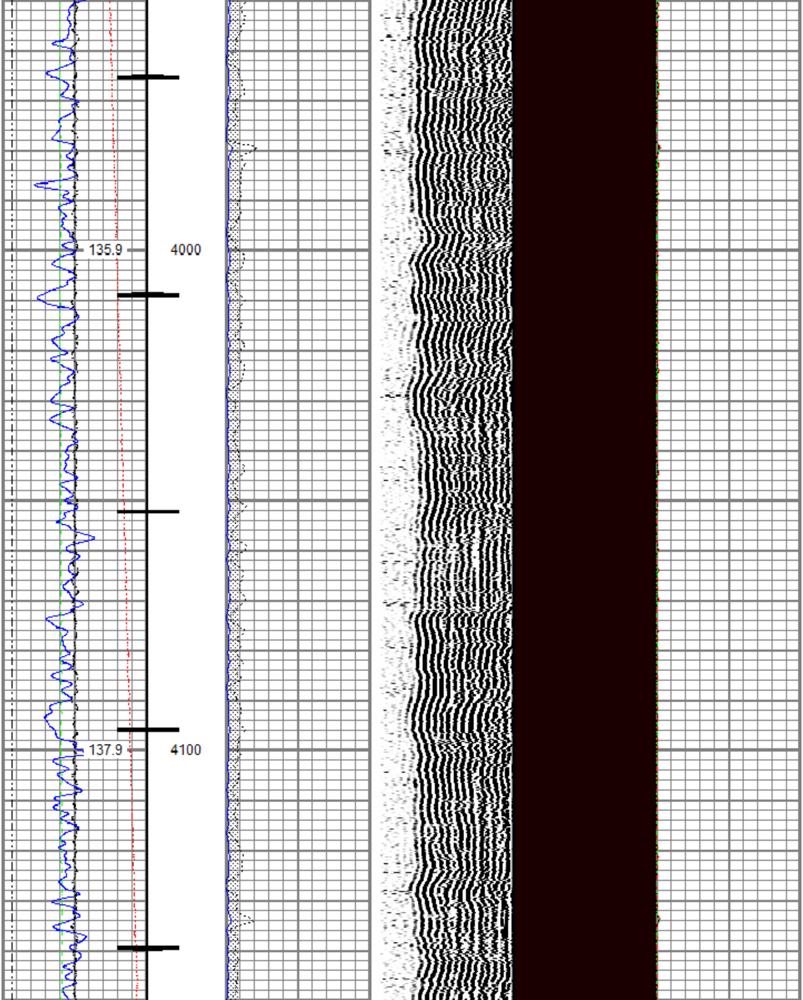
Main Pass

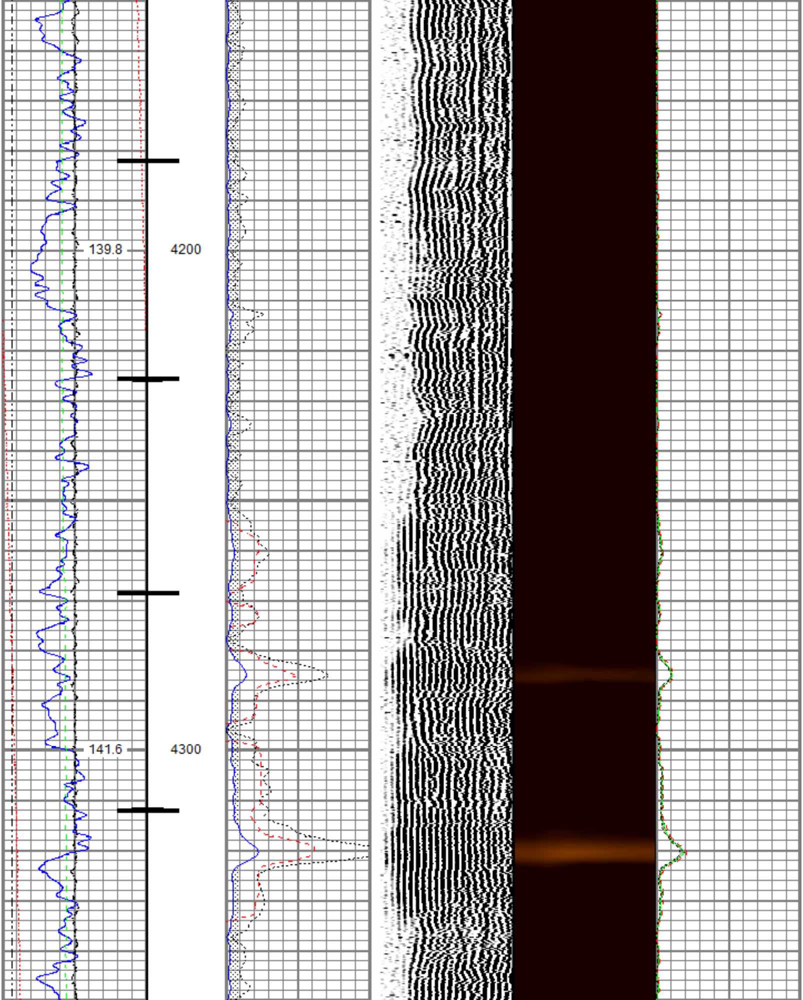
Recorded with 0 PSI Surface Induced Pressure

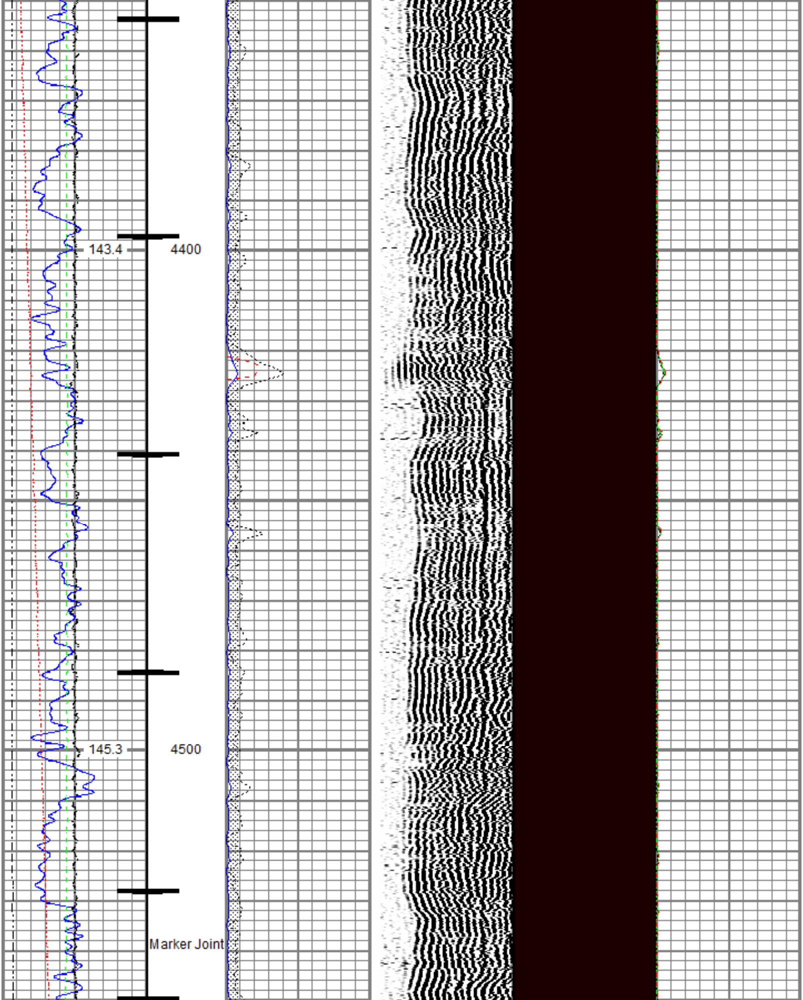
Database File	tep_federal pa 532-26_rbl_06-04-18\processed_tep_federal pa 532-26_rbl_06-04-18.db
Dataset Pathname	main.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Jun 05 09:56:52 2018
Charted by	Depth in Feet scaled 1:240

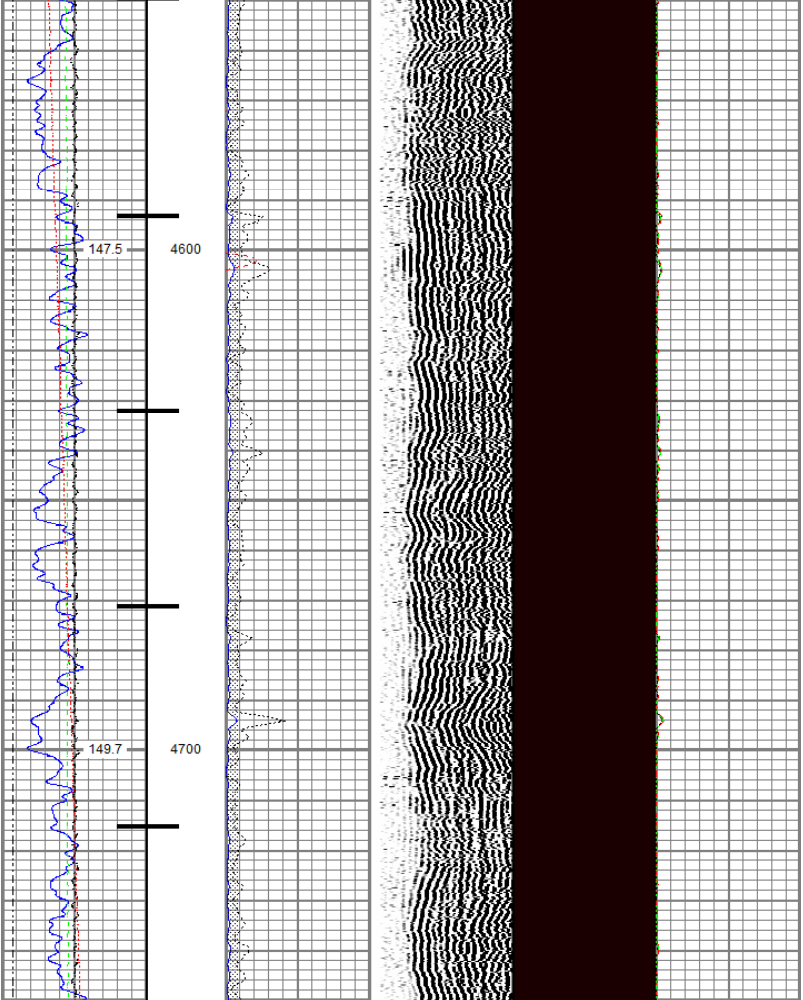
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 (usec) 1200		0 150
Line Speed		3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150		0 (mV) 20			0 150
Line Tension		3' Travel Time			Maximum Amplitude
0 (lb) 2000		300 (usec) 200			0 150
Differential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

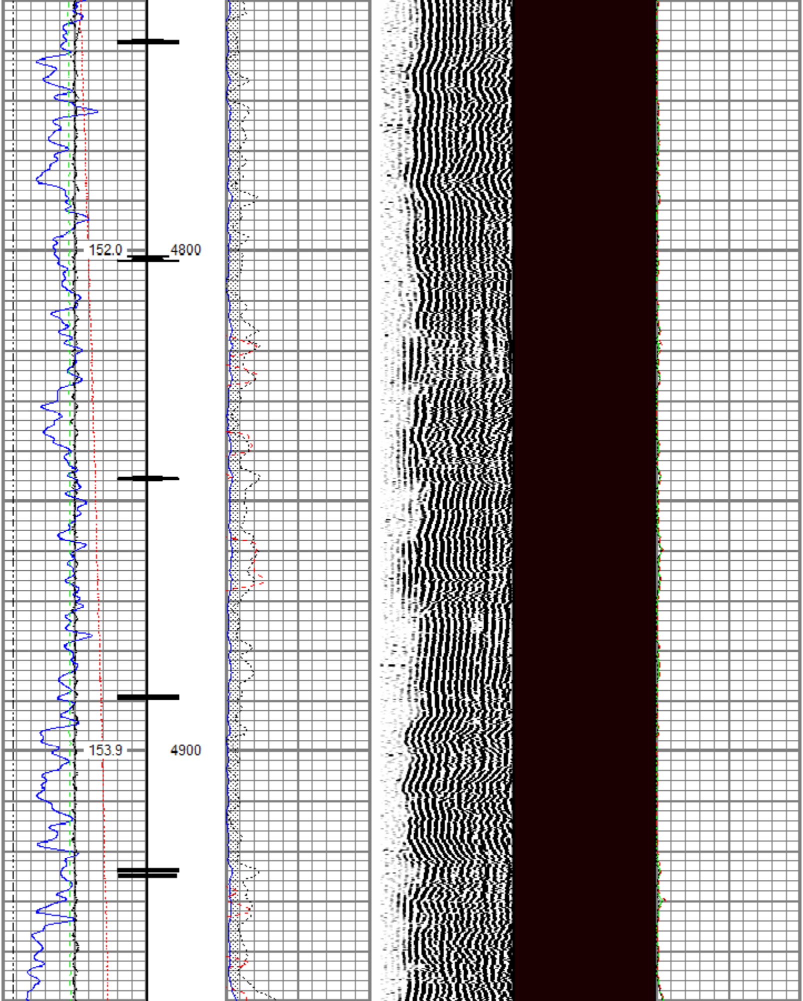

132.2
3800
134.1
3900

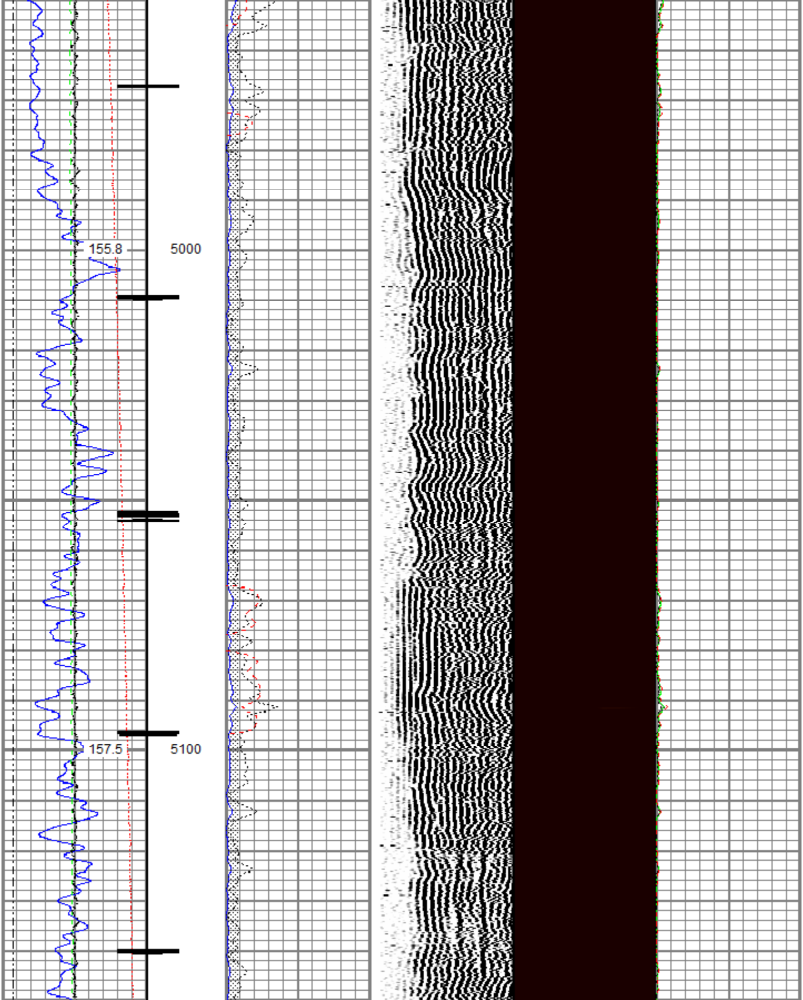

135.9
4000
137.9
4100

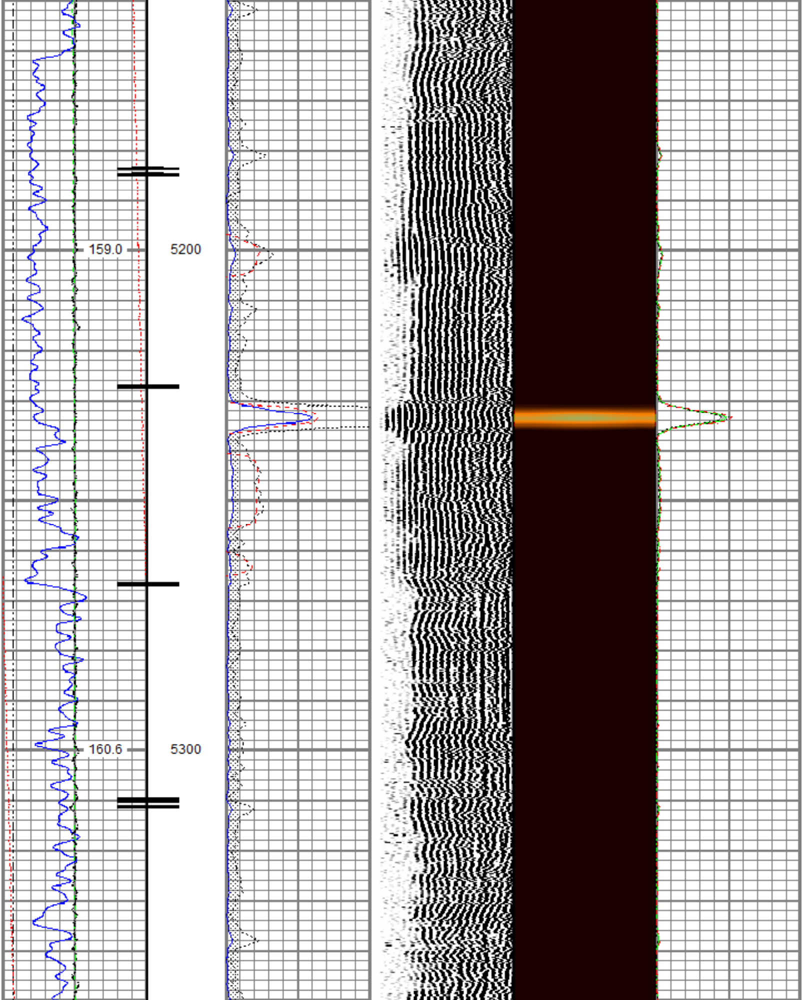

139.8
4200
141.6
4300

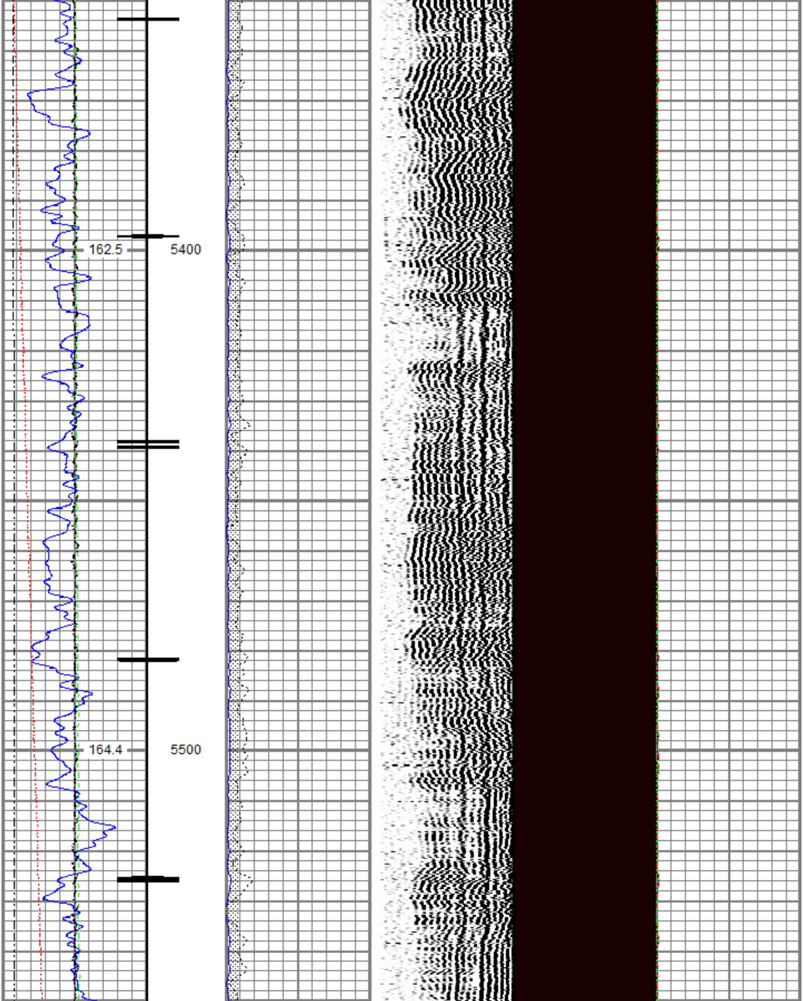

143.4
4400
145.3
4500
Marker Joint

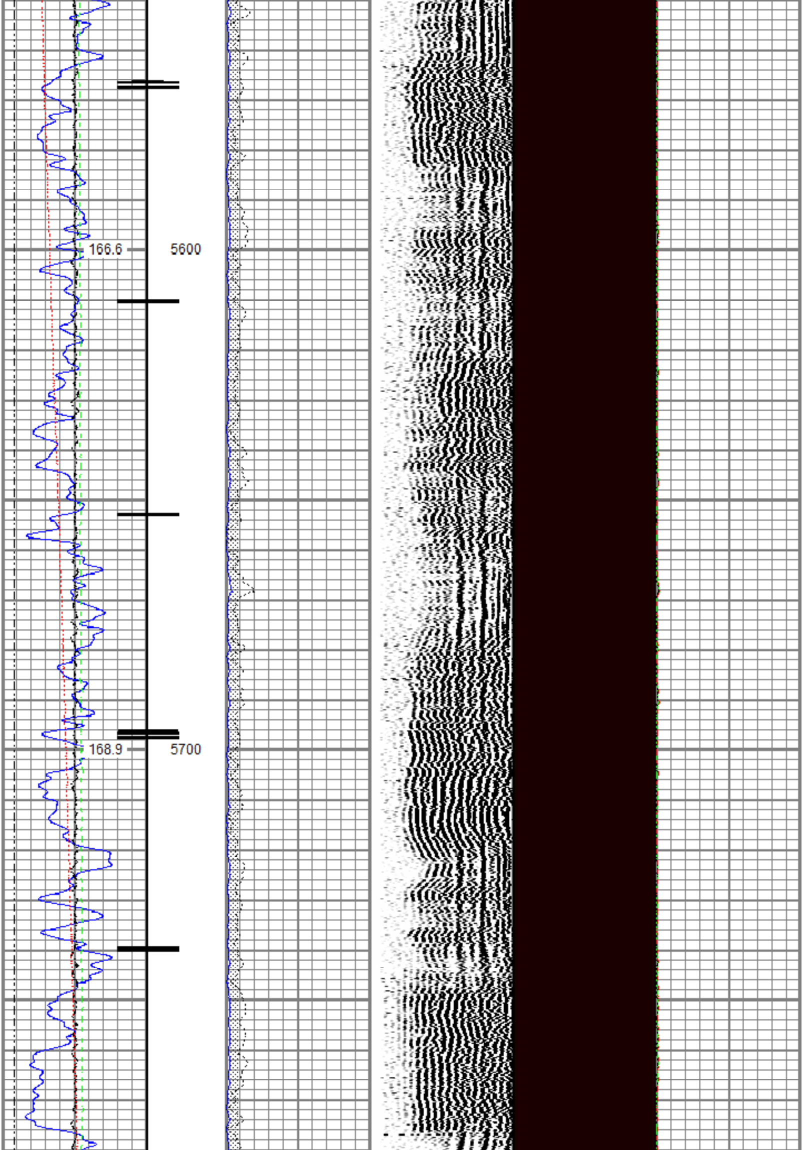

147.5
4600
149.7
4700

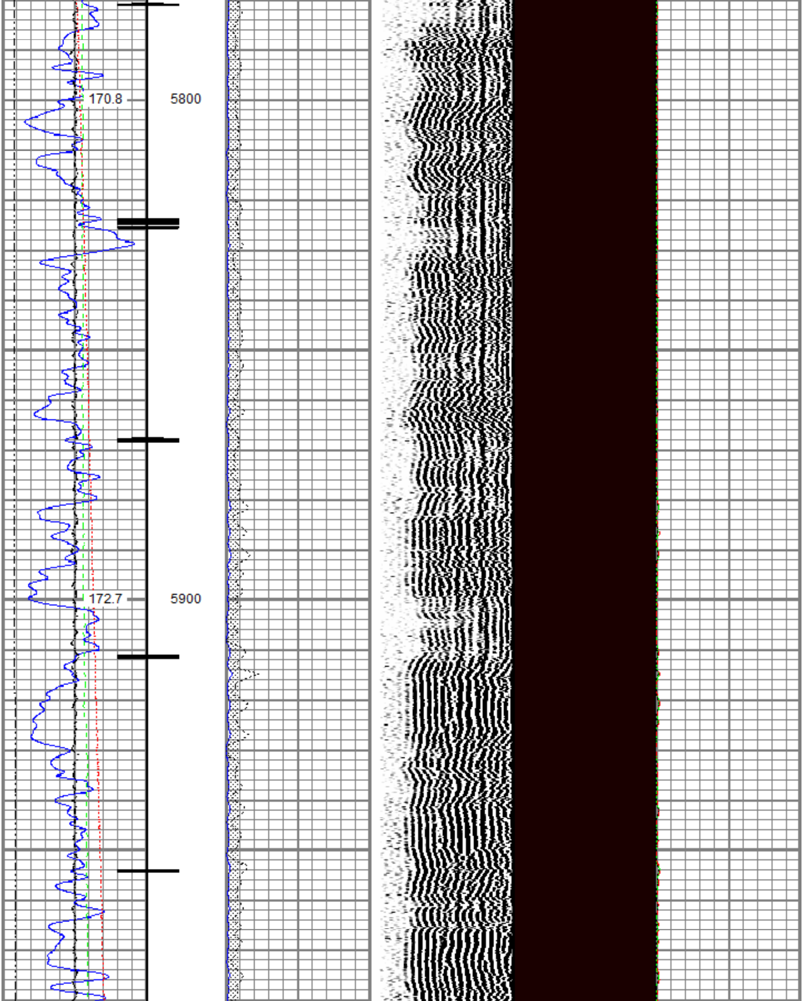

152.0
4800
153.9
4900

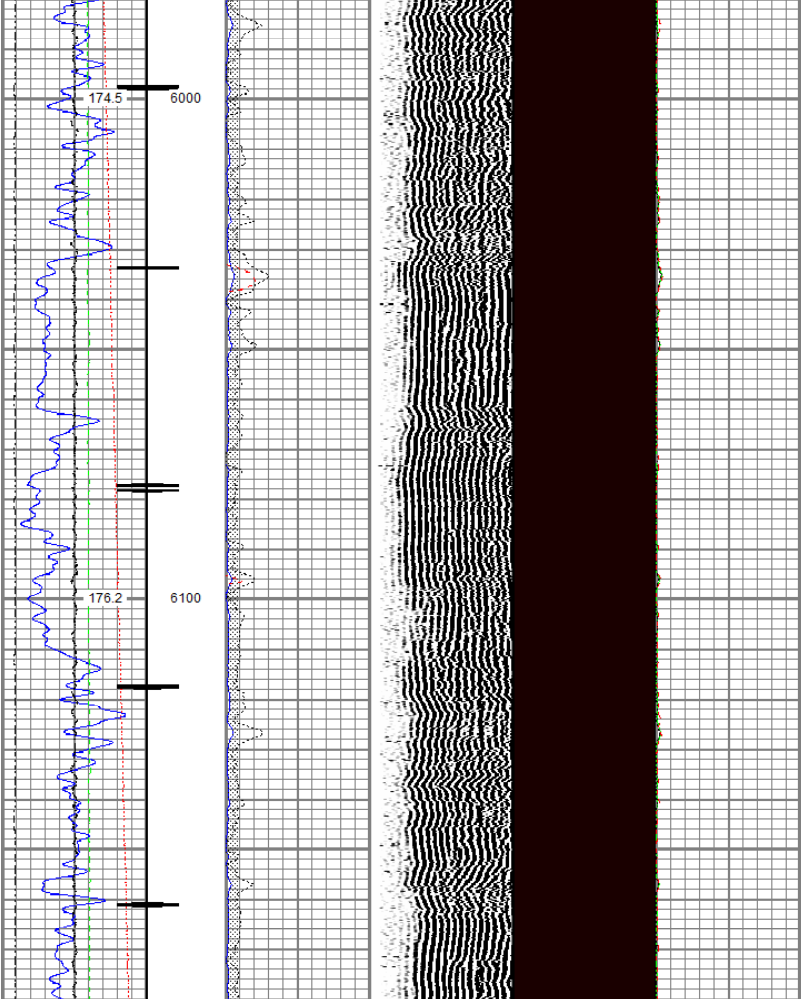

155.8
5000
157.5
5100

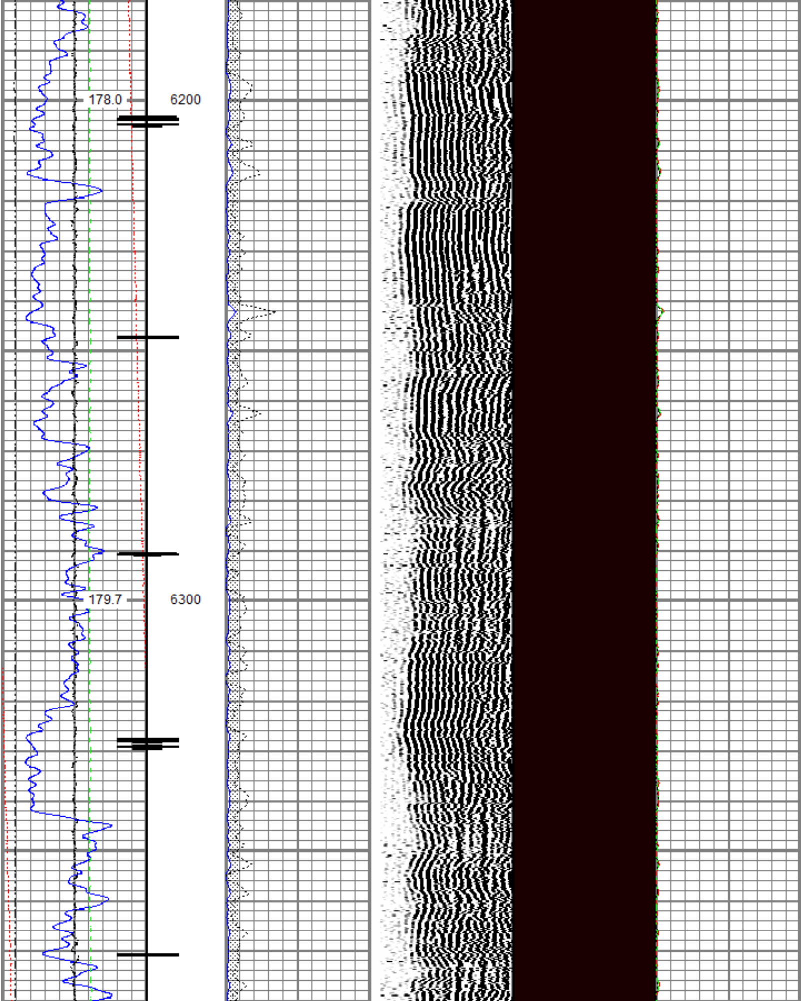

159.0
5200
160.6
5300

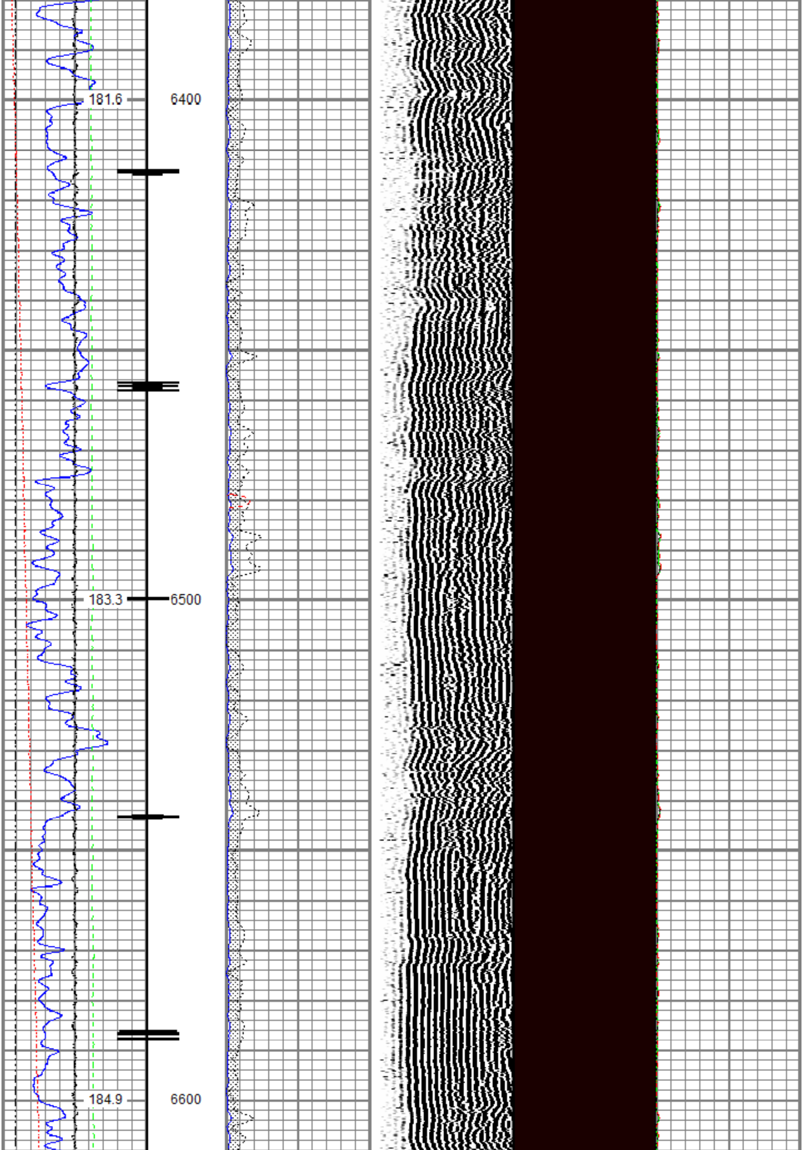

162.5
5400
164.4
5500

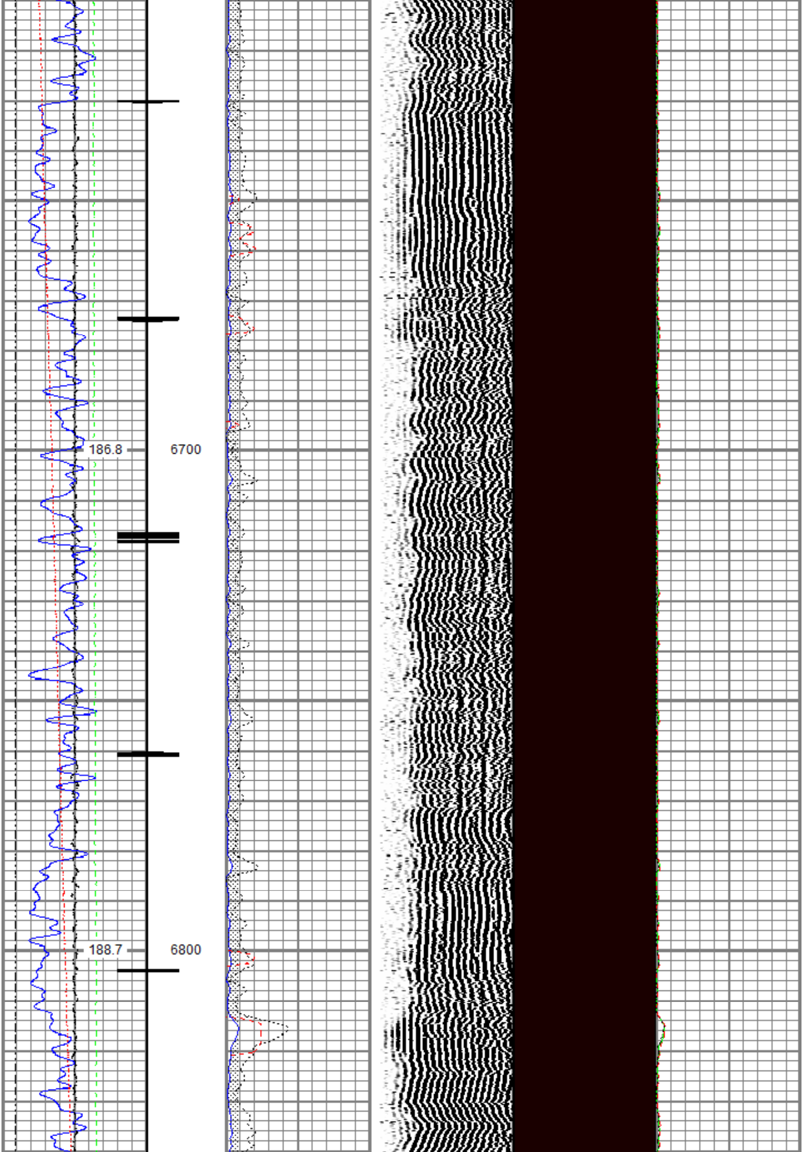

166.6
5600
168.9
5700

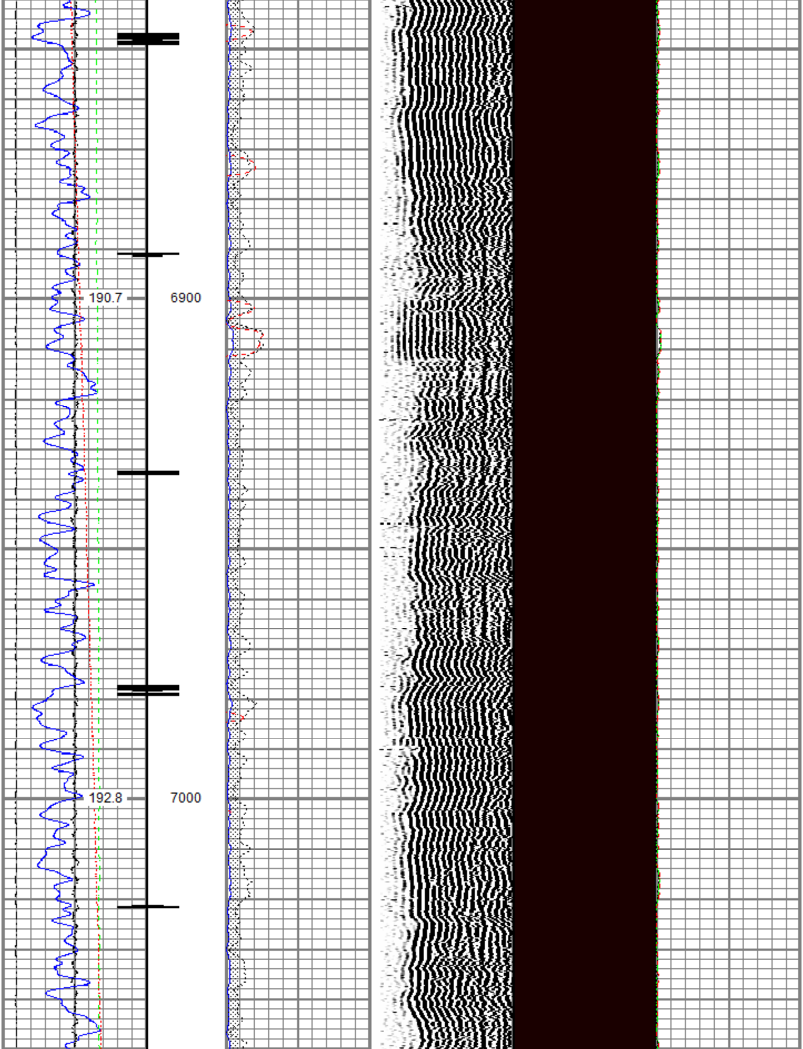

170.8
5800
172.7
5900

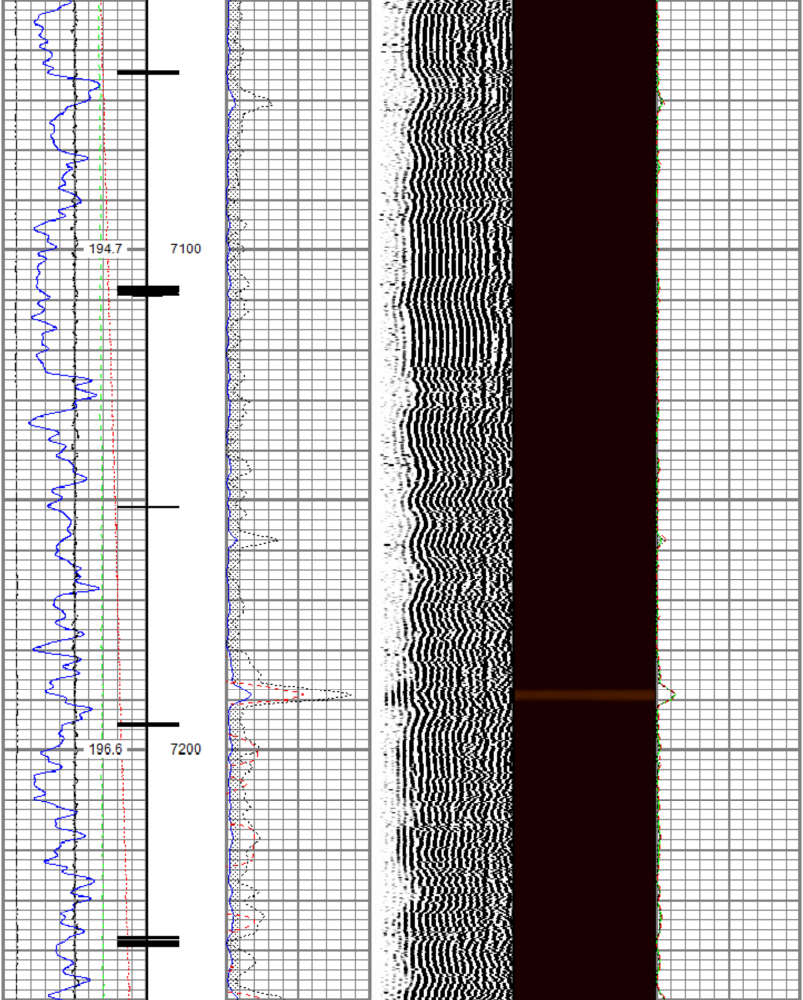

174.5
6000
176.2
6100

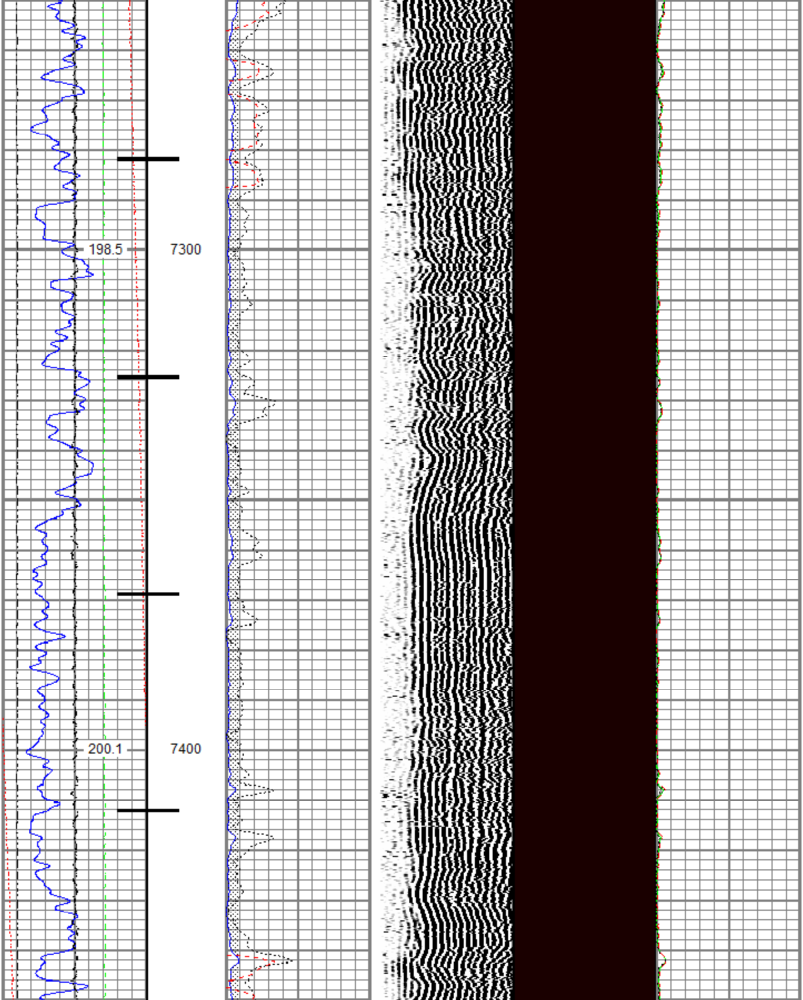

178.0
6200
179.7
6300

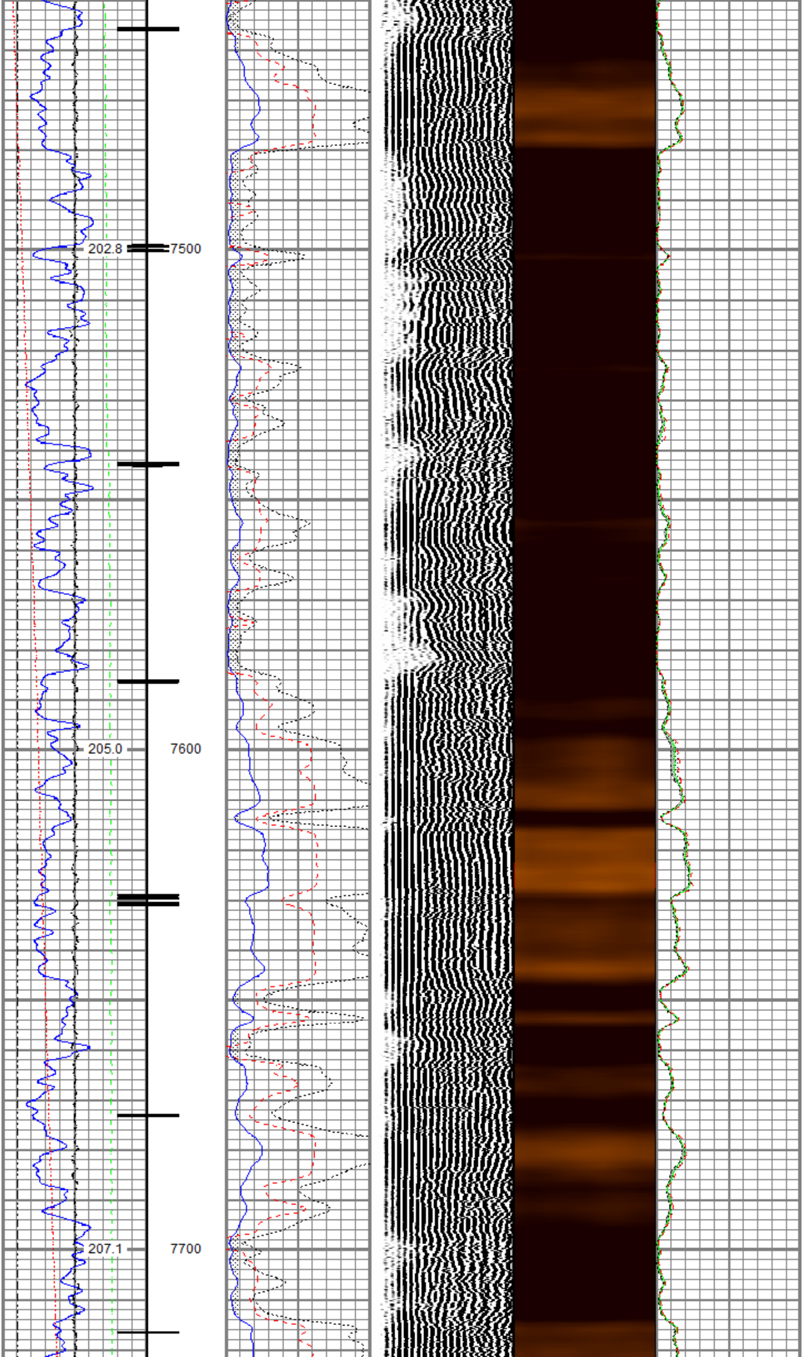

181.6
6400
183.3
6500
184.9
6600


186.8
6700
188.7
6800


190.7
6900
192.8
7000


194.7
7100
196.6
7200


198.5
7300
200.1
7400

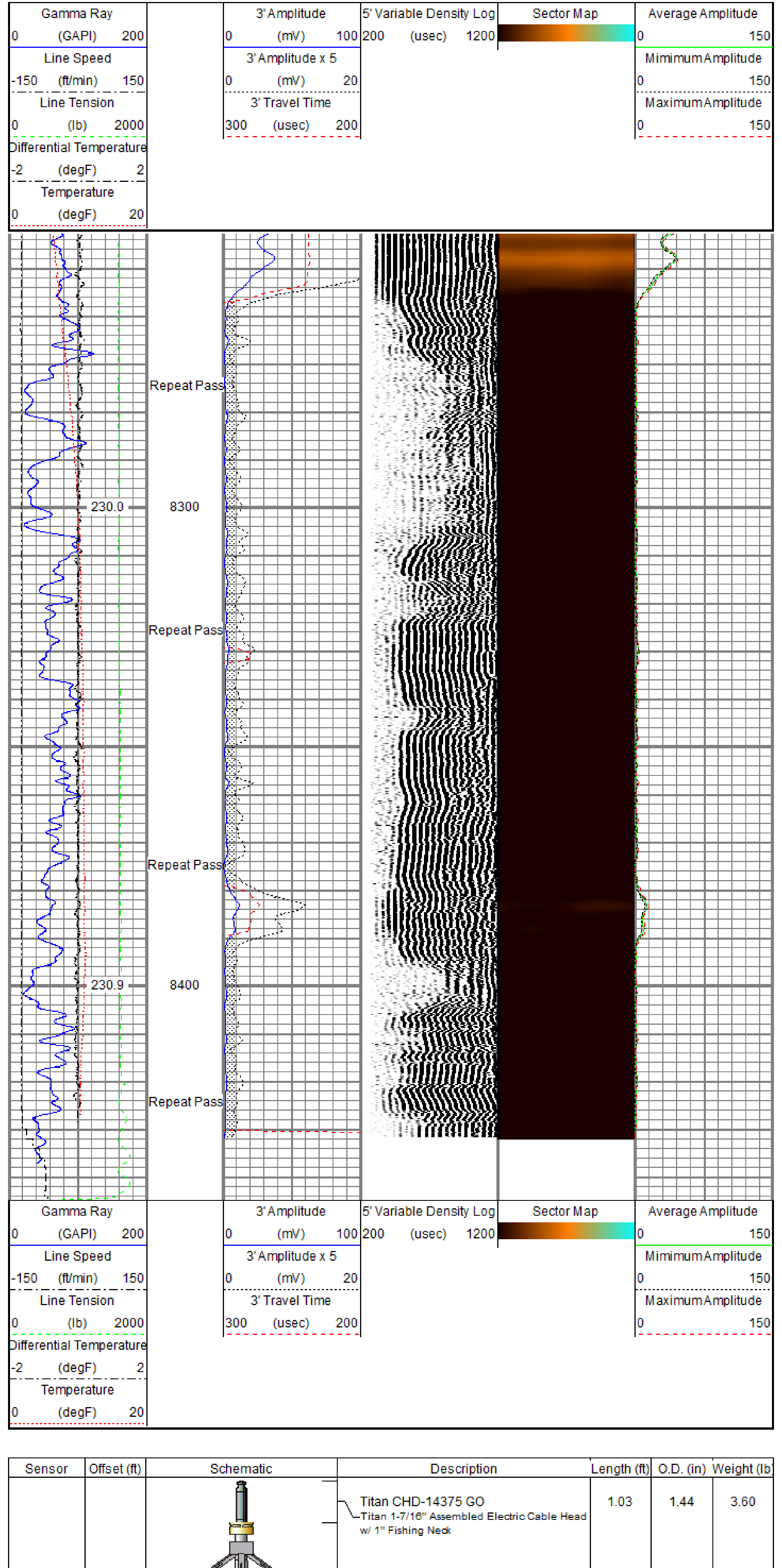

202.8
7500
205.0
7600
207.1
7700

RELIANCE
OILFIELD SERVICES

Repeat Pass

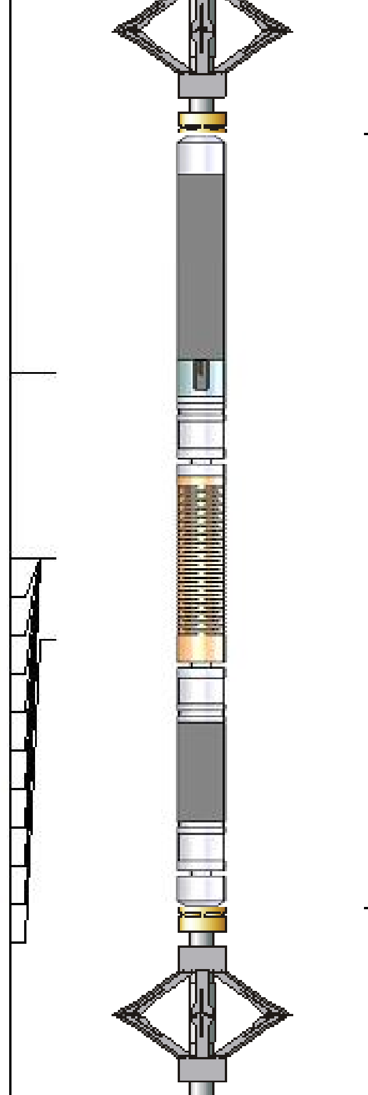
Recorded with 0 PSI Surface Induced Pressure

Database File	tep_federal pa 532-26_rbl_06-04-18\processed_tep_federal pa 532-26_rbl_06-04-18.db
Dataset Pathname	repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Jun 05 10:02:48 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

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: processed_tep_federal pa 532-26_rbl_06-04-18.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 532-26_rbl_06-04-18\processed_tep_federal pa 532-26_rbl_06-
Dataset Pathname	main.2
Dataset Creation	Tue Jun 05 09:56:52 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:	50.644	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.004	0.820	0.800	81.196	97.627	1.178
CAL	0.748	0.742				
5'	0.007	0.783	0.800	81.196	103.664	0.024
SUM						
S1	-0.003	0.964	0.000	100.000	103.443	0.300
S2	0.001	0.896	0.000	100.000	111.691	-0.122
S3	-0.000	0.775	0.000	100.000	129.070	0.012
S4	0.000	0.716	0.000	100.000	139.655	-0.061
S5	0.002	0.721	0.000	100.000	139.078	-0.309
S6	-0.001	0.749	0.000	100.000	133.305	0.101
S7	-0.003	0.828	0.000	100.000	120.225	0.407
S8	-0.004	0.942	0.000	100.000	105.714	0.409

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.748	0.742	1.000	0.000

Air Zero Calibration, performed Mon Jun 04 16:22:37 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.003	0.000	0.001
5'	0.005	0.000	0.001
SUM			
S1	-0.003	0.000	-0.000
S2	-0.003	0.000	0.001
S3	-0.004	0.000	0.002
S4	-0.004	0.000	0.001
S5	-0.004	0.000	0.000
S6	-0.004	0.000	0.001
S7	-0.003	0.000	-0.000
S8	-0.003	0.000	0.001

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

Company	TEP Rocky Mountain LLC
Well	Federal PA 532-26
Field	Parachute
County	Garfield
State	Colorado