RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal GM 322-8
Field Grand Valley
County Garfield
State Colorado

Company TEP Rocky Mountain LLC
Well Federal GM 322-8
Field Grand Valley
County Garfield State Colorado
Location: API # : 05-045-24022
SEC 8 TWP 7S RGE 96W
Other Services
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			Elevation
Permanent Datum	Ground Level	Elevation 6172.4'	K.B. 6196.4' D.F. 6195.4' G.L. 6172.4'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Date	03-FEB-2019
Run Number	One
Depth Driller	7140 FT
Depth Logger	7093 FT
Bottom Logged Interval	7079 FT
Top Log Interval	Surface
Open Hole Size	12.250"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	212°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	20:20
Equipment Number	HD-0359
Location	Grand Junction, CO
Recorded By	J. Donnelly
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	13 3/8	54.5	J-55	Surface	1037 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	7097 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 3322-3343 FT
Log ran from 7079 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!

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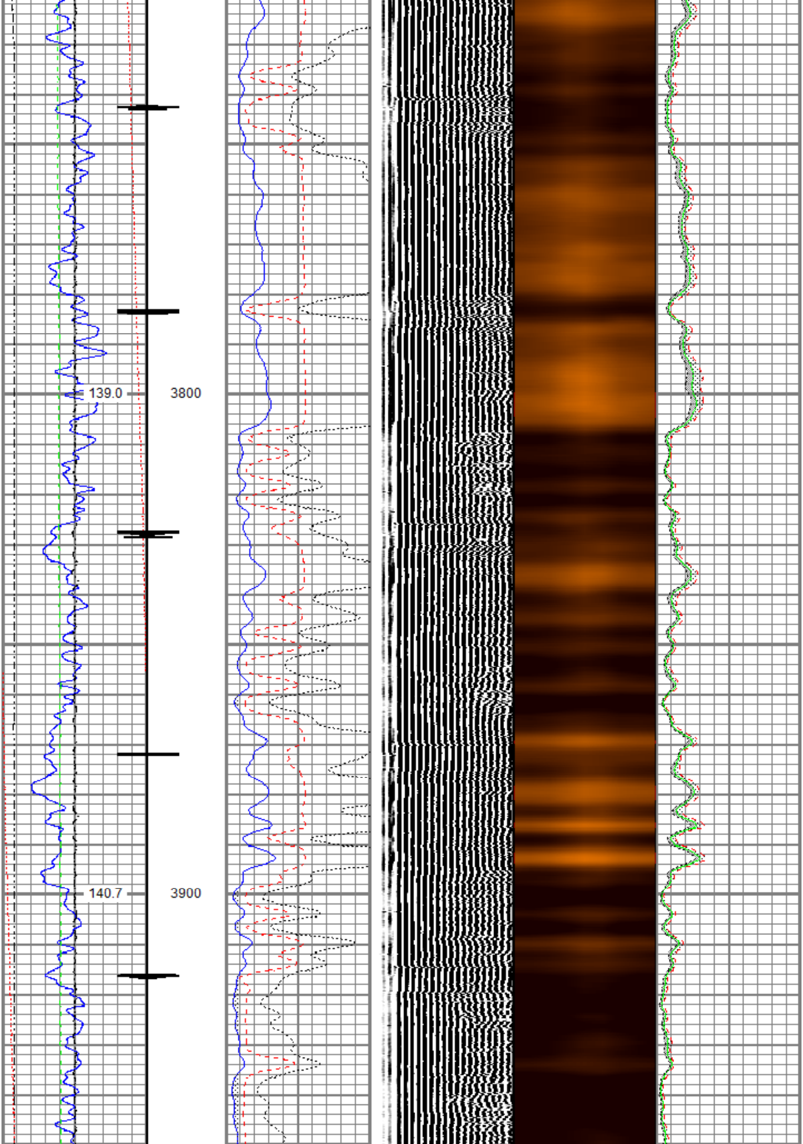
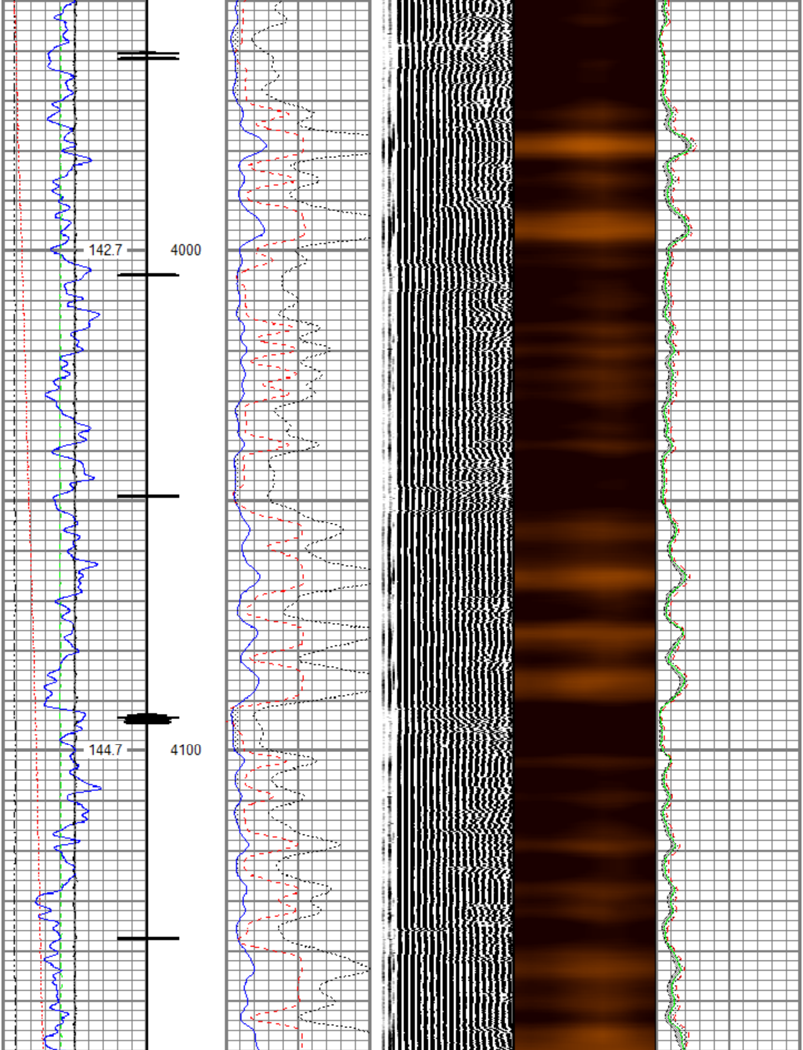
Main Pass

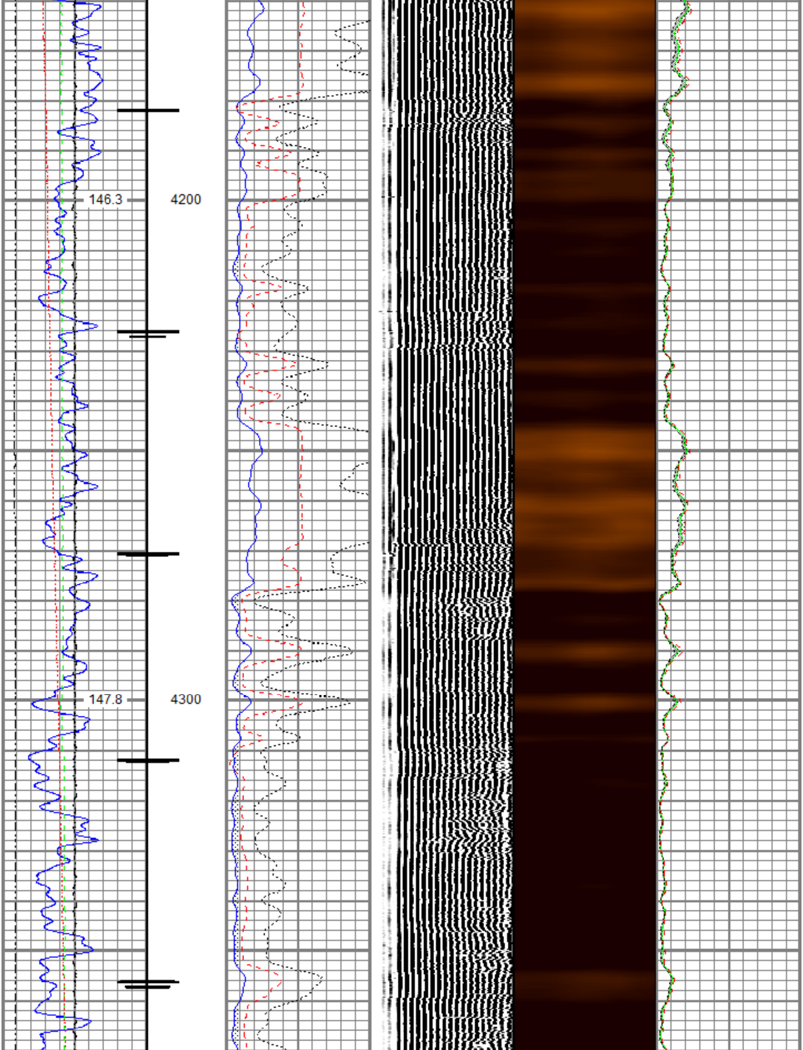
Recorded With 0 PSI Surface Induced Pressure

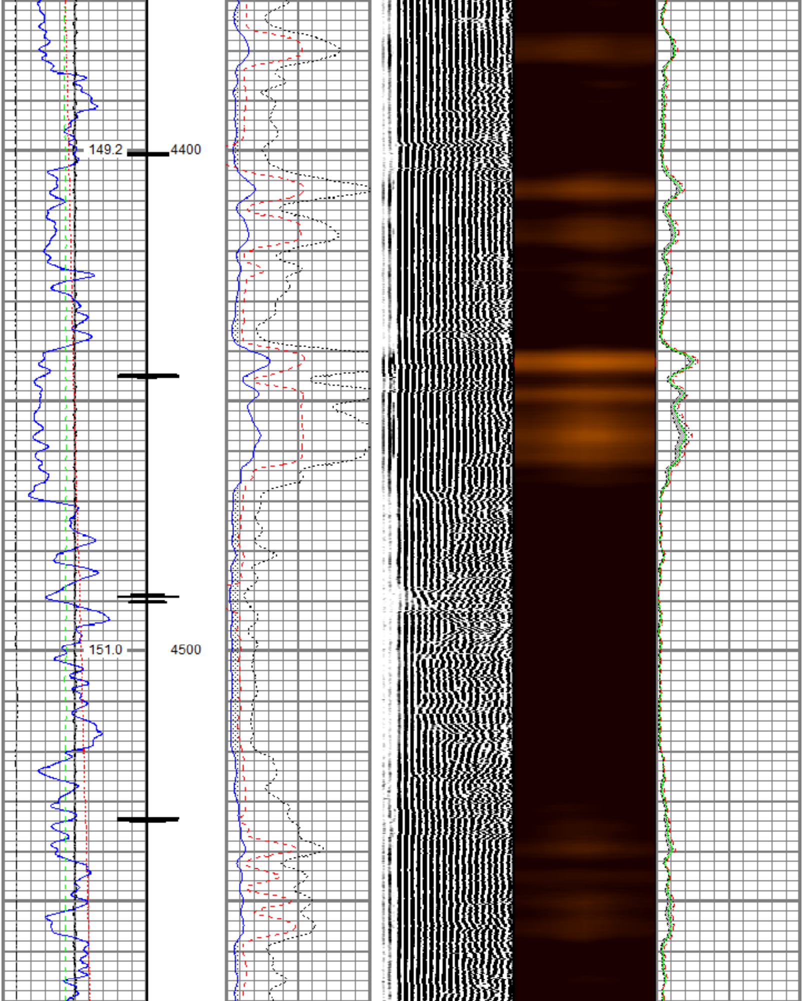
Database File	tep\tep_federal gm 322-8_rbl_02-03-19\tep_federal gm 322-8_rbl_02-03-19.db
Dataset Pathname	Main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Feb 05 09:36:23 2019
Charted by	Depth in Feet scaled 1:240

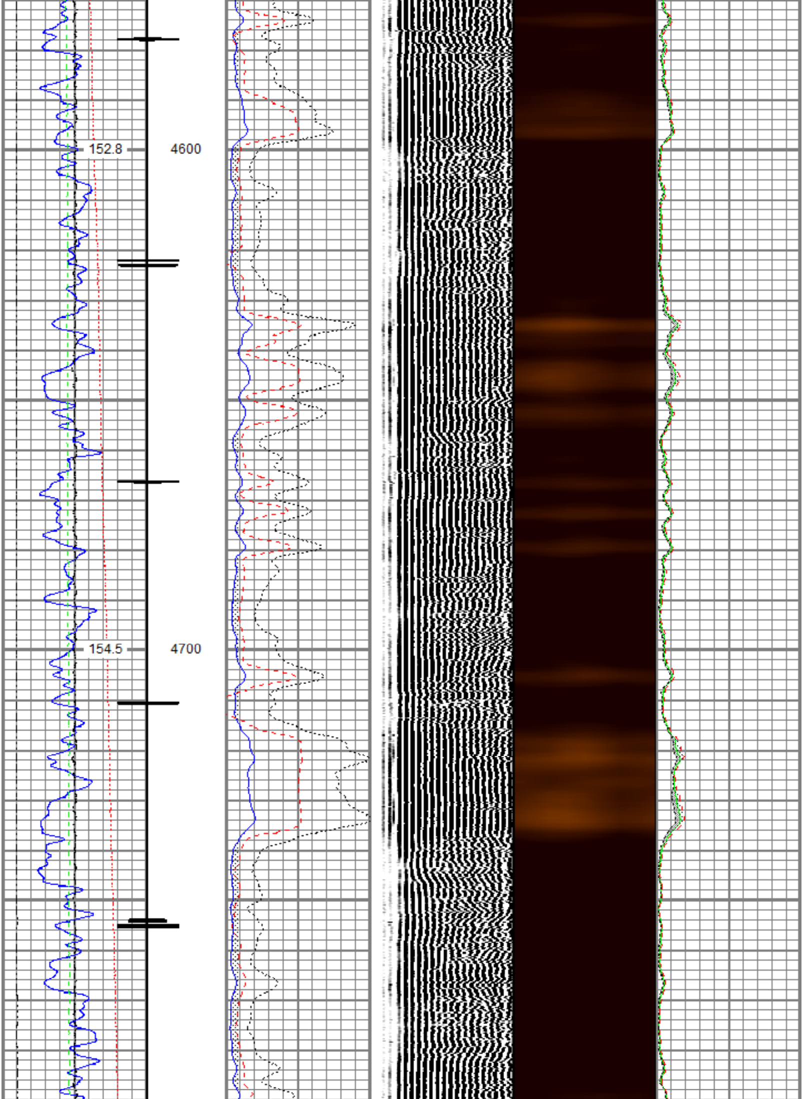
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				
10 CCL 0				

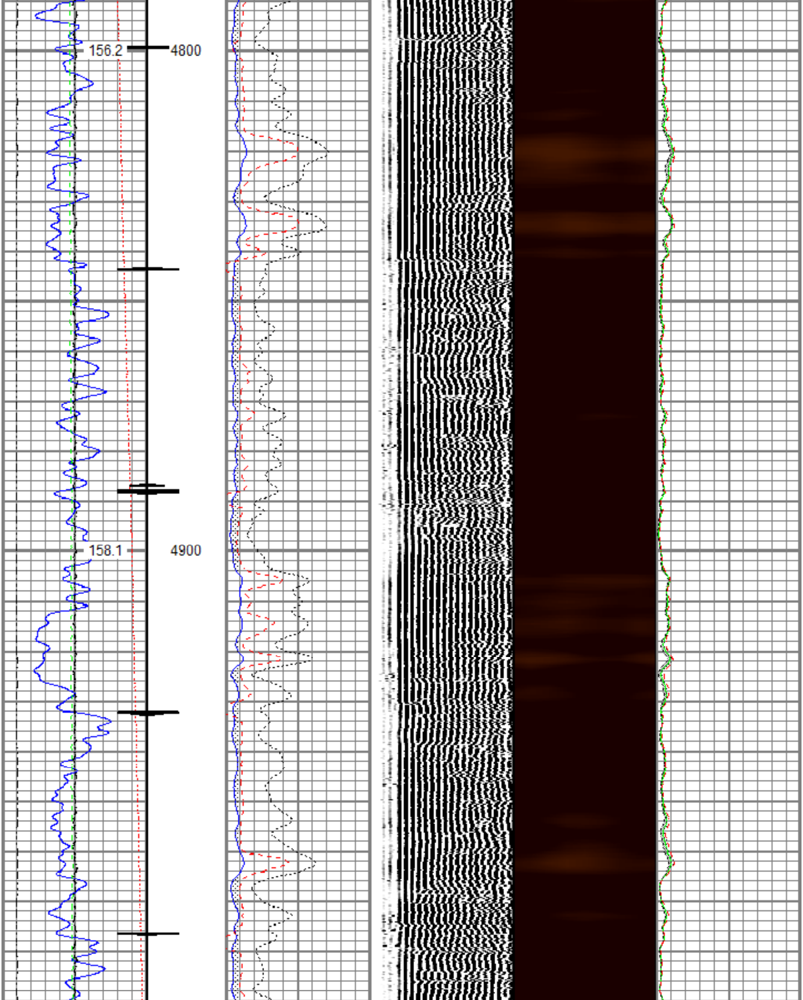


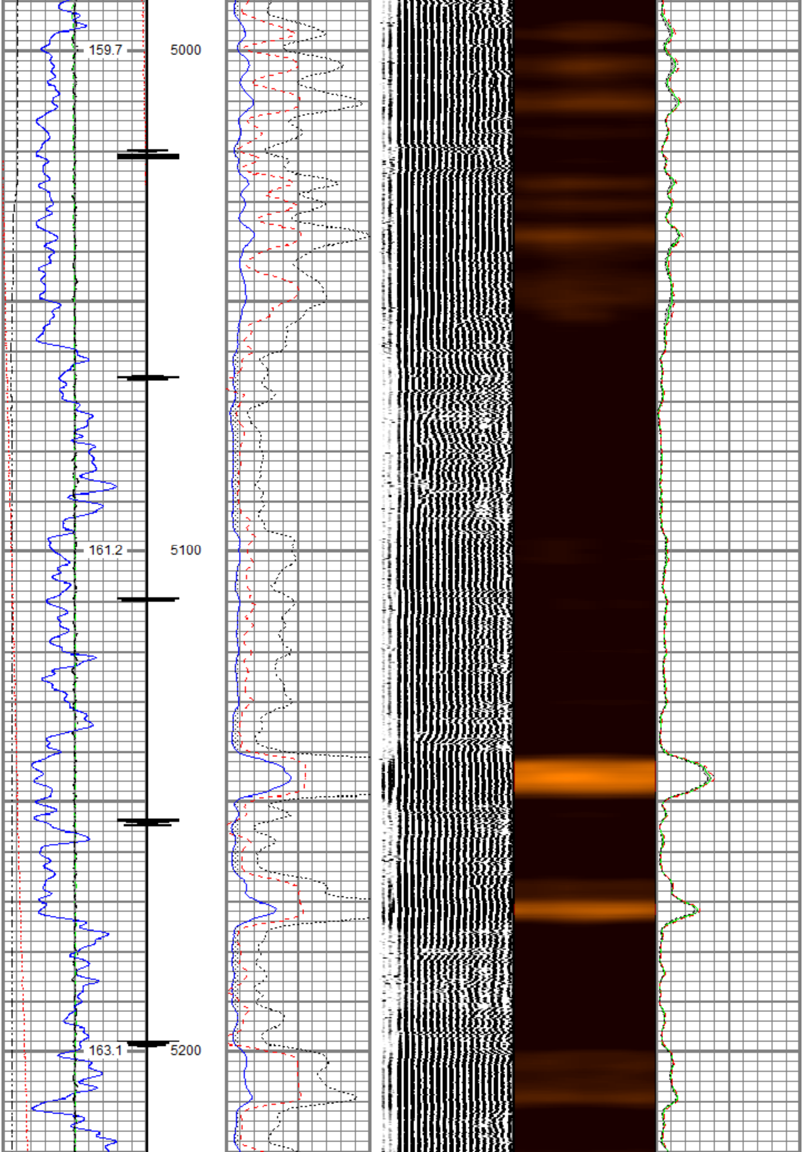


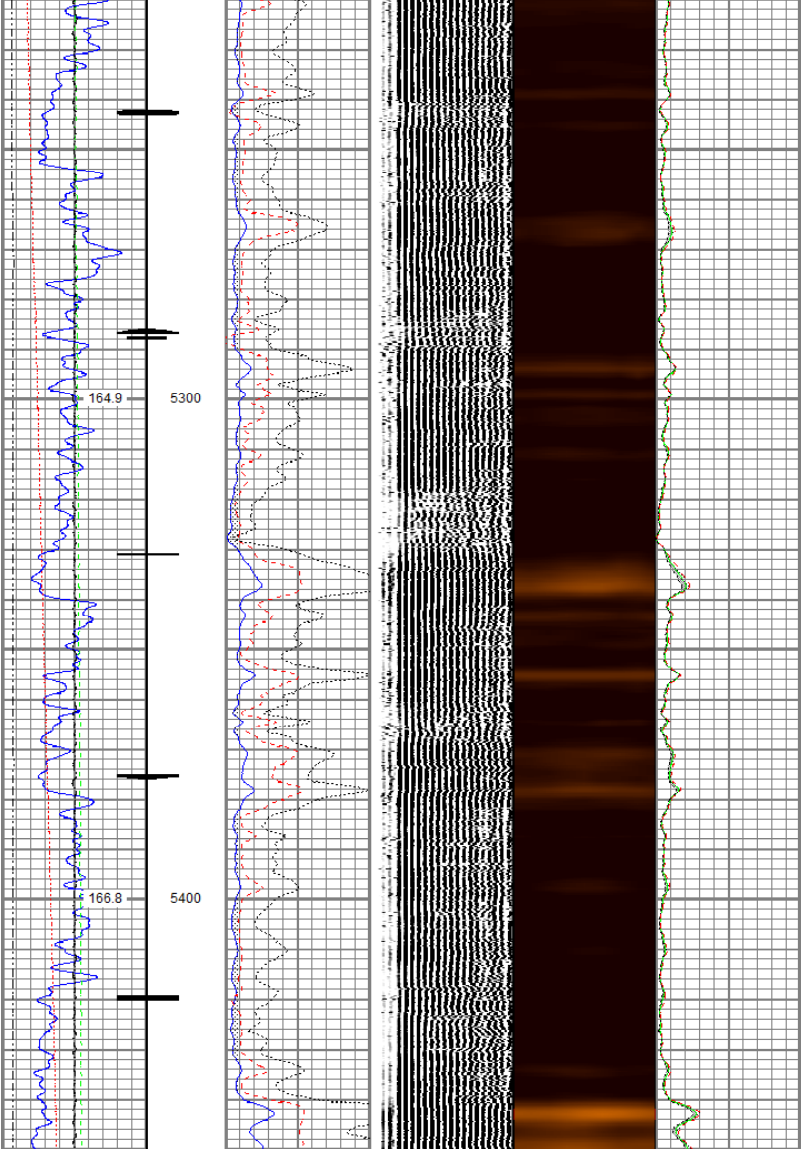


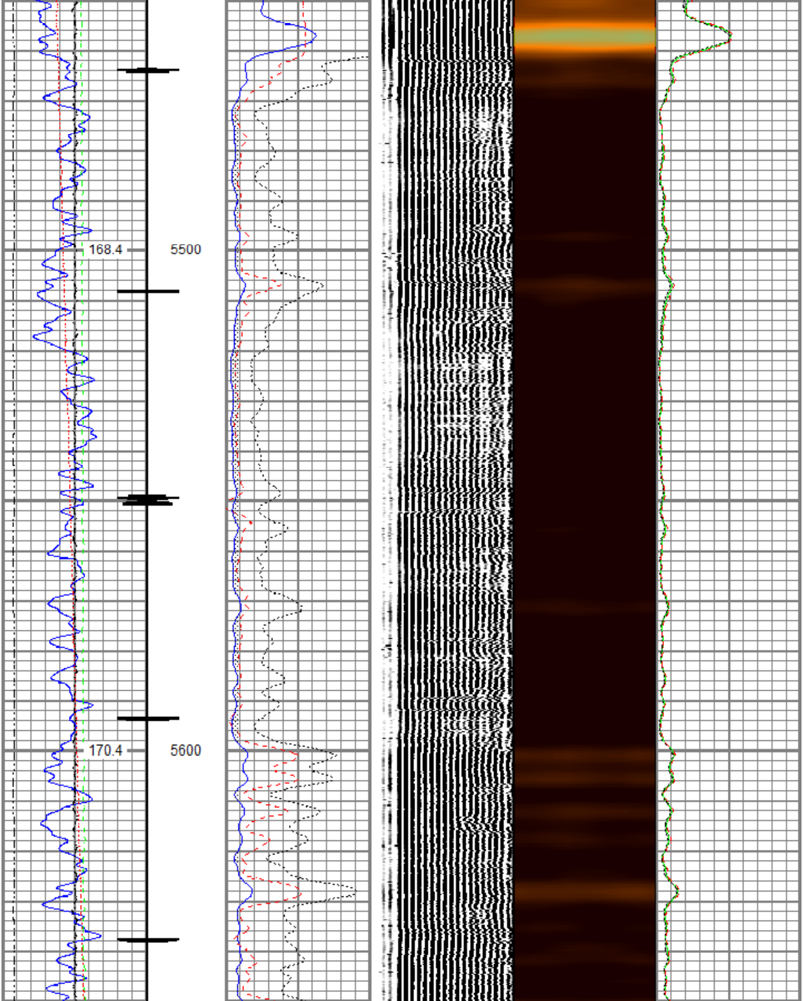


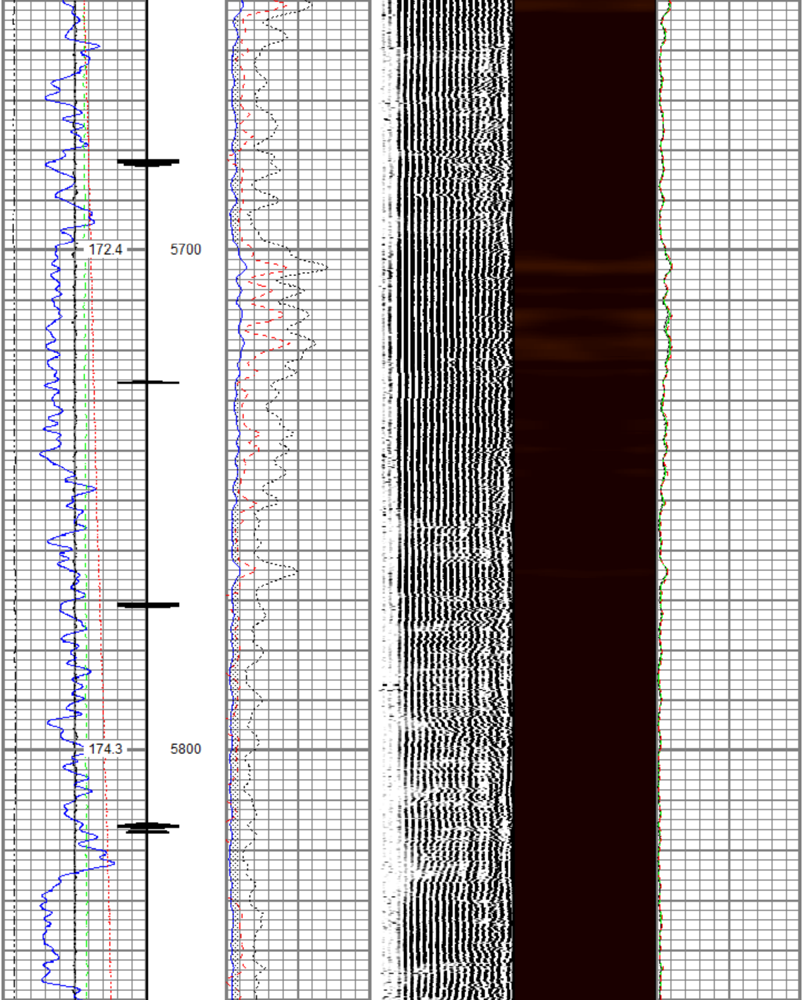


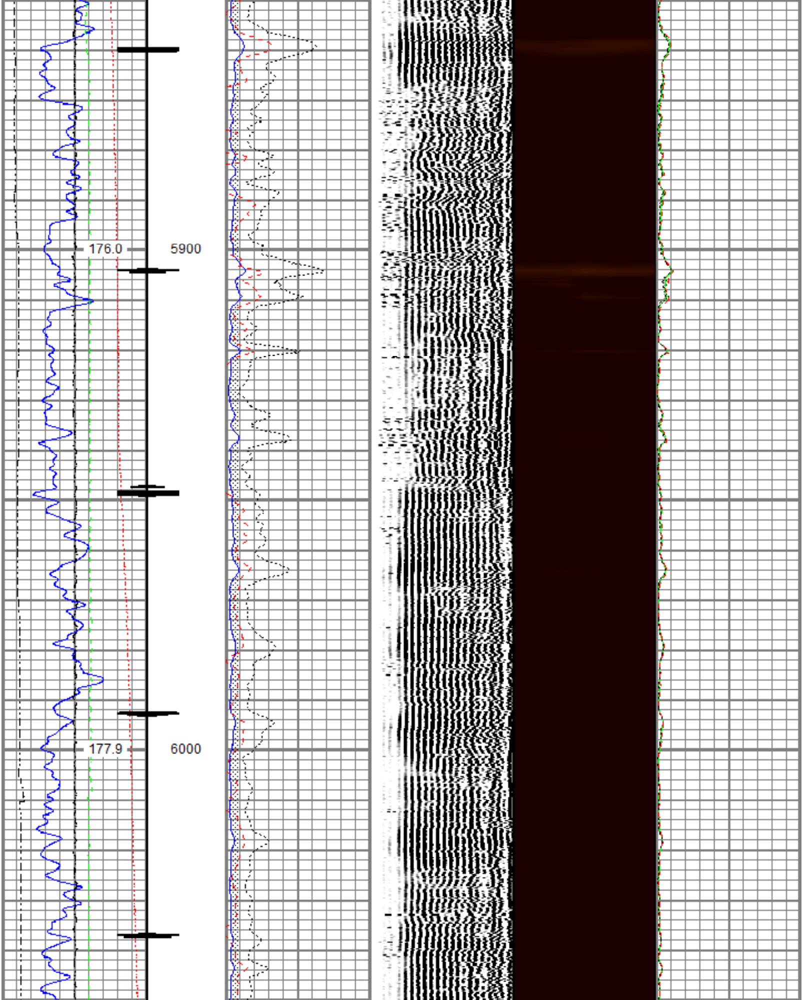


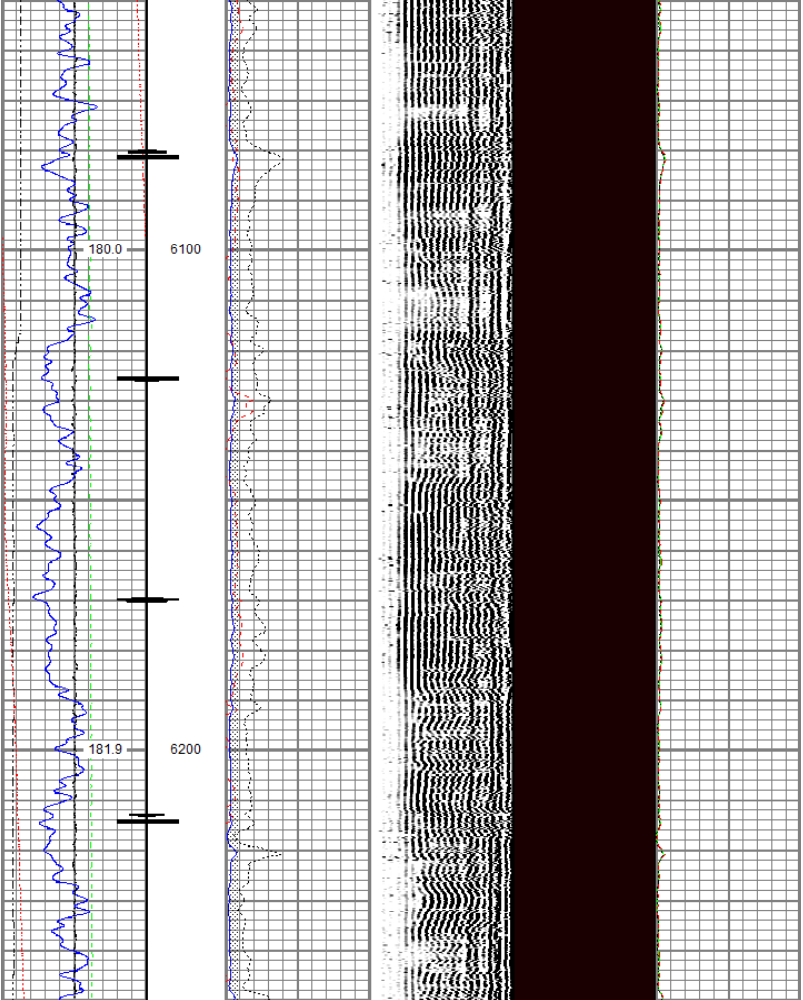


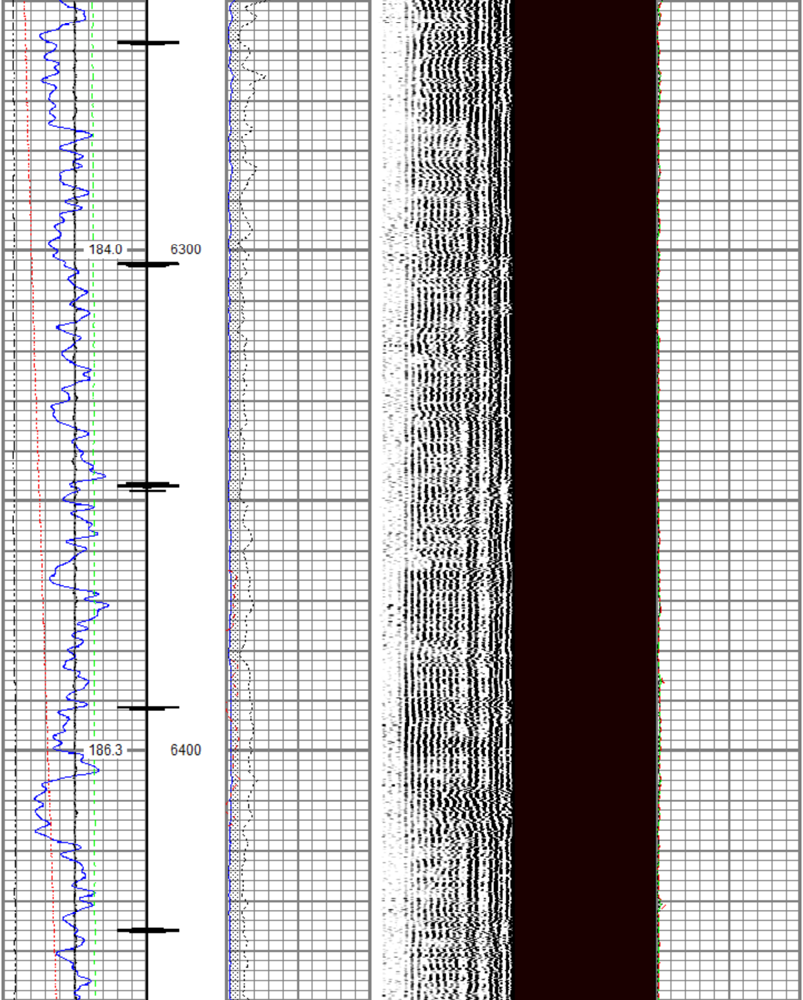


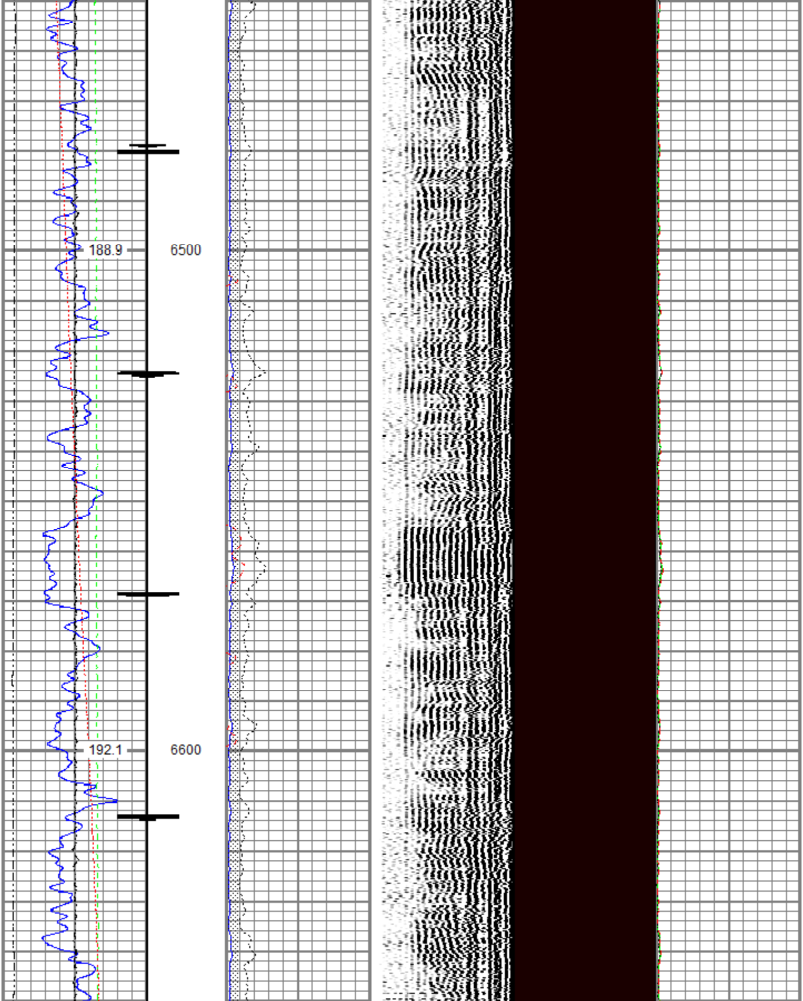


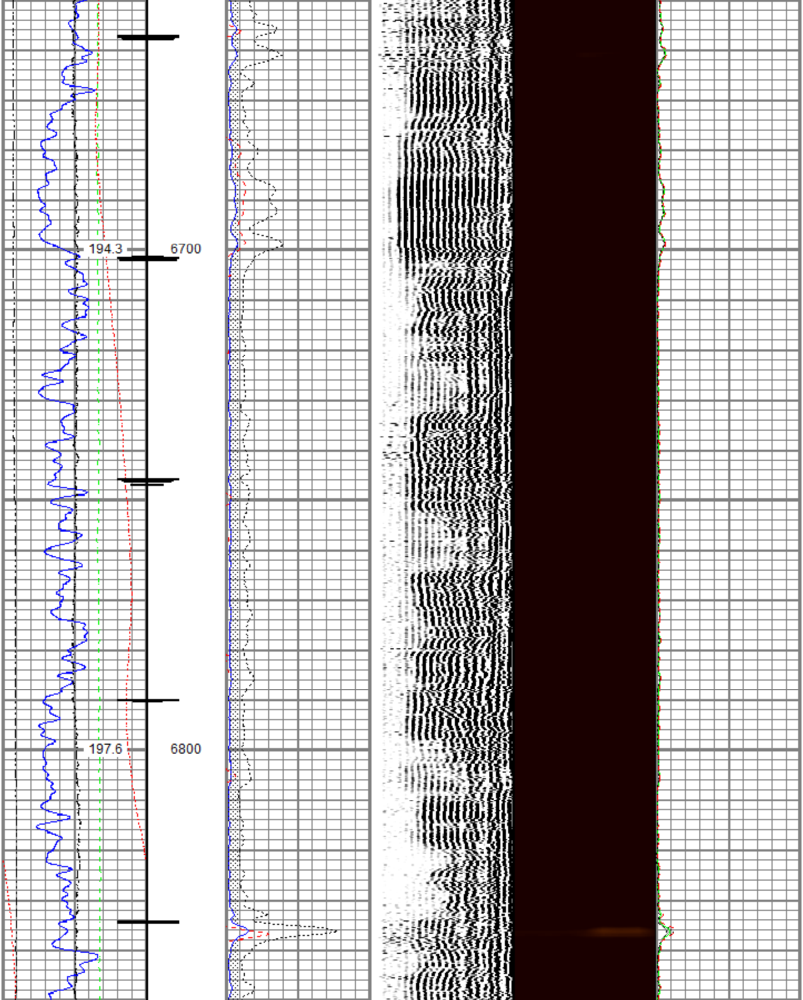


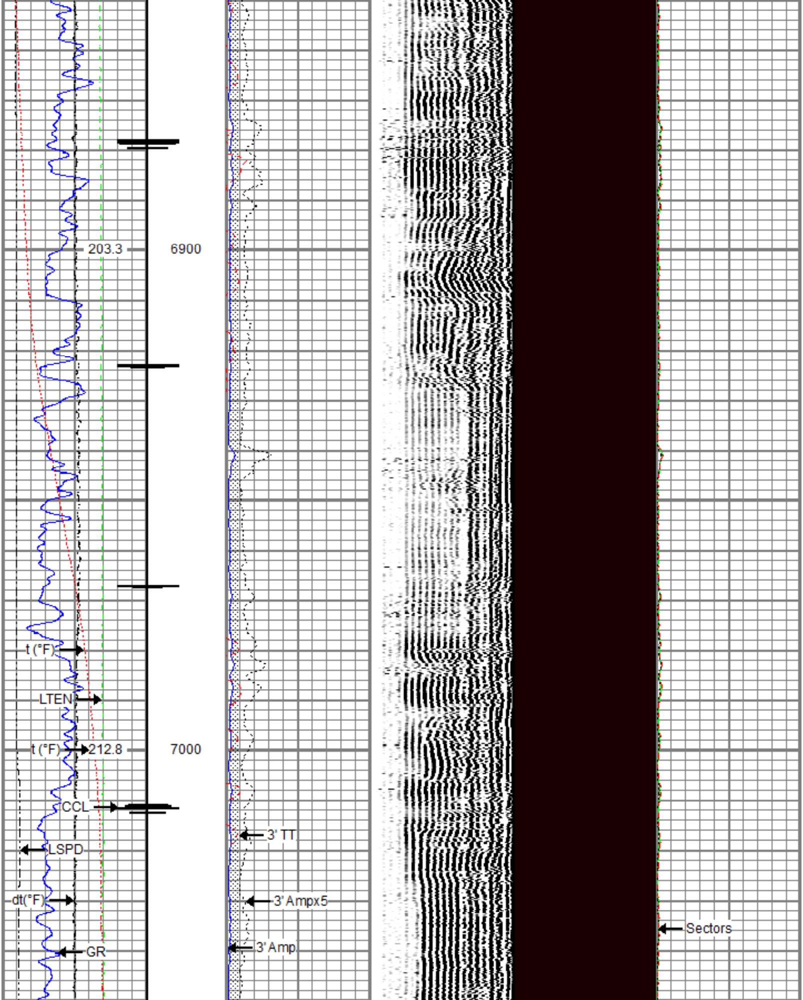


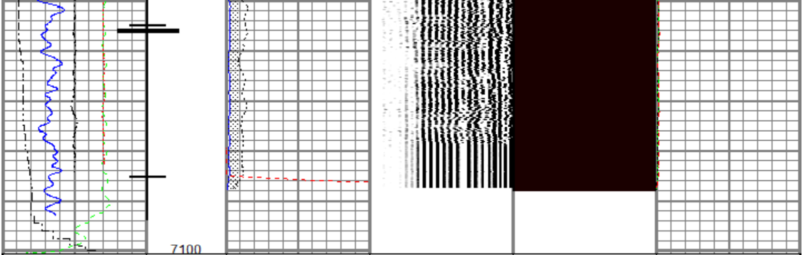












Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				
10 *CCL* 0				

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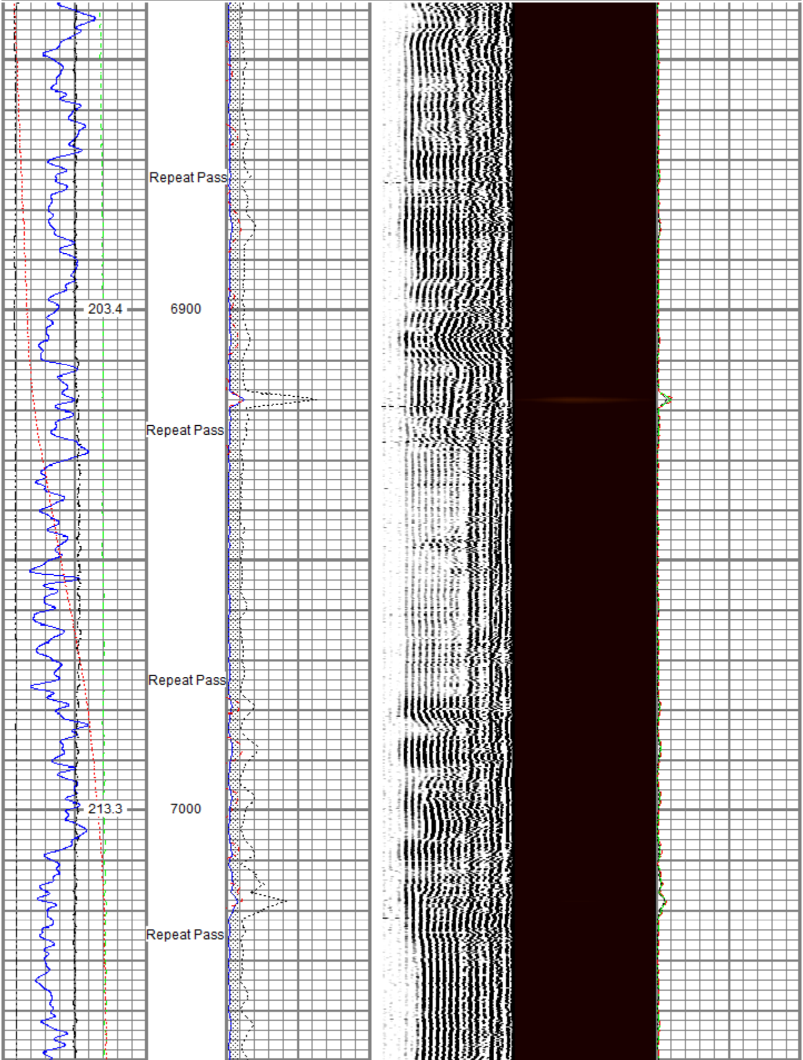
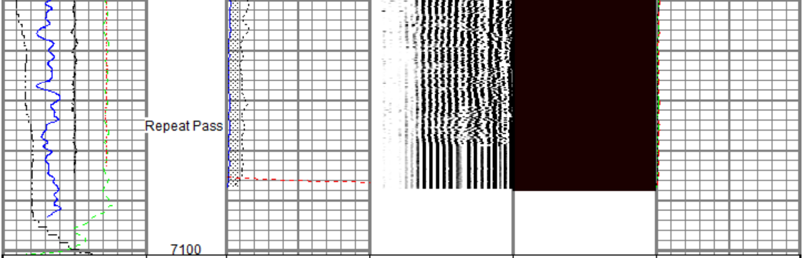
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

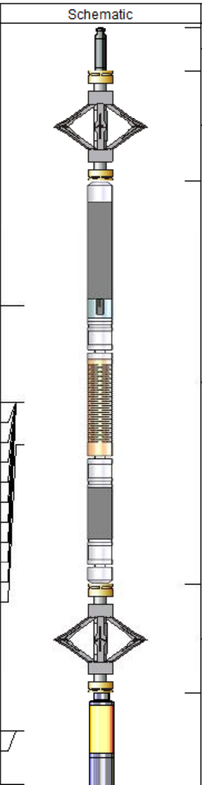
Database File	tep\tep_federal gm 322-8_rbl_02-03-19\tep_federal gm 322-8_rbl_02-03-19.db
Dataset Pathname	Repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Feb 05 09:49:44 2019
Charted by	Depth in Feet scaled 1:240

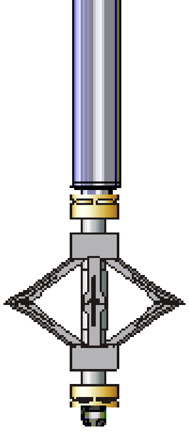
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				





Curve	Left	Unit	Right
Gamma Ray	0	(GAPI)	200
Line Speed	-150	(ft/min)	150
Line Tension	0	(lb)	2000
Differential Temperature	-2	(degF)	2
Temperature	0	(degF)	20
3' Amplitude	0	(mV)	100
3' Amplitude x 5	0	(mV)	20
3' Travel Time	300	(usec)	200
5' Variable Density Log	200		1200
Sector Map	10		110
Average Amplitude	0		150
Mimimum Amplitude	0		150
Maximum Amplitude	0		150

Sensor	Offset (ft)	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
TEMP	16.33					
			Probe Radii-2750 RBT (101013) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
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					
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL$2	6.42					
CCL$1	6.42					
CR	5.18					

GR	5.18		Probe GR-CCL-2750 GOB (FW1211-081) 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 gm 322-8_rbl_02-03-19.db: field/well/run1/Main.1
Total length: 22.82 ft
Total weight: 260.60 lb
O.D.: 2.75 in

Calibration Report

Database File	c:\programdata\warrior\data\tep\tep_federal gm 322-8_rbl_02-03-19\tep_federal gm 322-8_rbl_02-03-19.db
Dataset Pathname	Main.1
Dataset Creation	Tue Feb 05 09:36:23 2019

Gamma Ray Calibration Report

Serial Number:	FW1211-081	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 12:22:44 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	112.4	cps
Calibrator Reading:	1008.7	cps
Sensitivity:	0.7107	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	101013	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	15.966	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.002	0.964	0.800	81.196	83.262	0.953
CAL	0.000	0.753				
5'	-0.001	0.678	0.800	81.196	118.420	0.915
SUM						
S1	-0.007	0.979	0.000	100.000	101.445	0.733
S2	-0.004	0.958	0.000	100.000	103.992	0.376
S3	-0.004	0.966	0.000	100.000	103.169	0.365
S4	-0.005	1.004	0.000	100.000	99.138	0.496
S5	-0.005	1.033	0.000	100.000	96.307	0.489
S6	-0.005	1.023	0.000	100.000	97.252	0.485
S7	-0.004	0.989	0.000	100.000	100.715	0.361
S8	-0.002	0.969	0.000	100.000	102.938	0.226

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	0.753	1.000	0.000

Air Zero Calibration, performed Sun Feb 03 18:13:31 2019:

	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

Temperature Calibration Report

Serial Number:	101013	
Tool Model:	2750 RBT	
Performed:	Sun Nov 12 13:21:13 2017	
	Reference	Reading
Low Reference:	100.00 degF	112.30 degF
High Reference:	350.00 degF	394.75 degF
Gain:	0.89	
Offset:	0.60	
Delta Spacing	1	

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Company	TEP Rocky Mountain LLC
Well	Federal GM 322-8
Field	Grand Valley
County	Garfield
State	Colorado