RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal PA 334-24
Field	Parachute
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal PA 334-24
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23782
SEC 19 TWP 6S RGE 94W
Other Services
--

			Elevation
Permanent Datum	Ground Level	Elevation 5732.2'	K.B. 5756.2'
Log Measured From	Kelly Bushing	24 FT	D.F. 5755.2'
Drilling Measured From	Kelly Bushing		G.L. 5732.2'

Date	14-OCT-2018
Run Number	One
Depth Driller	9042 FT
Depth Logger	8974 FT
Bottom Logged Interval	8960 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	240°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	10:49
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	36	J-55	Surface	1124 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8998 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 4926 FT - 4940 FT
Log ran from 8960 FT to Surface
Log ran with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

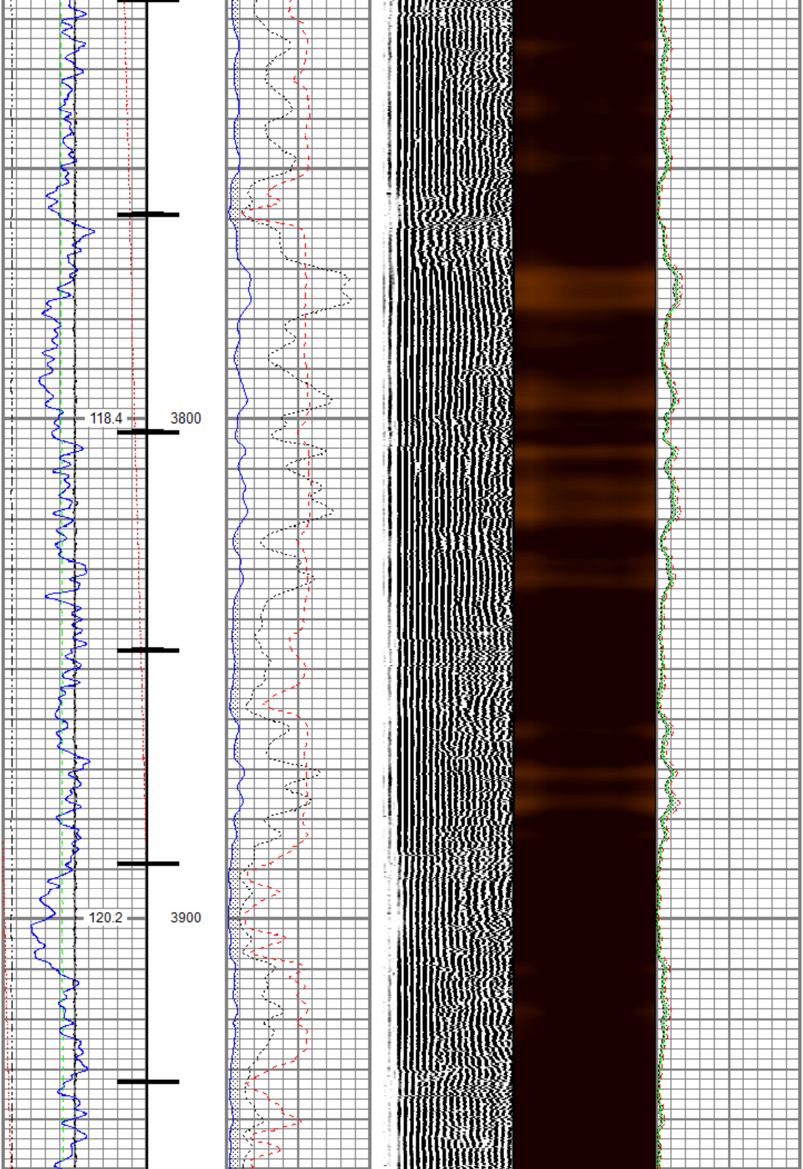
RELIANCE
OILFIELD SERVICES

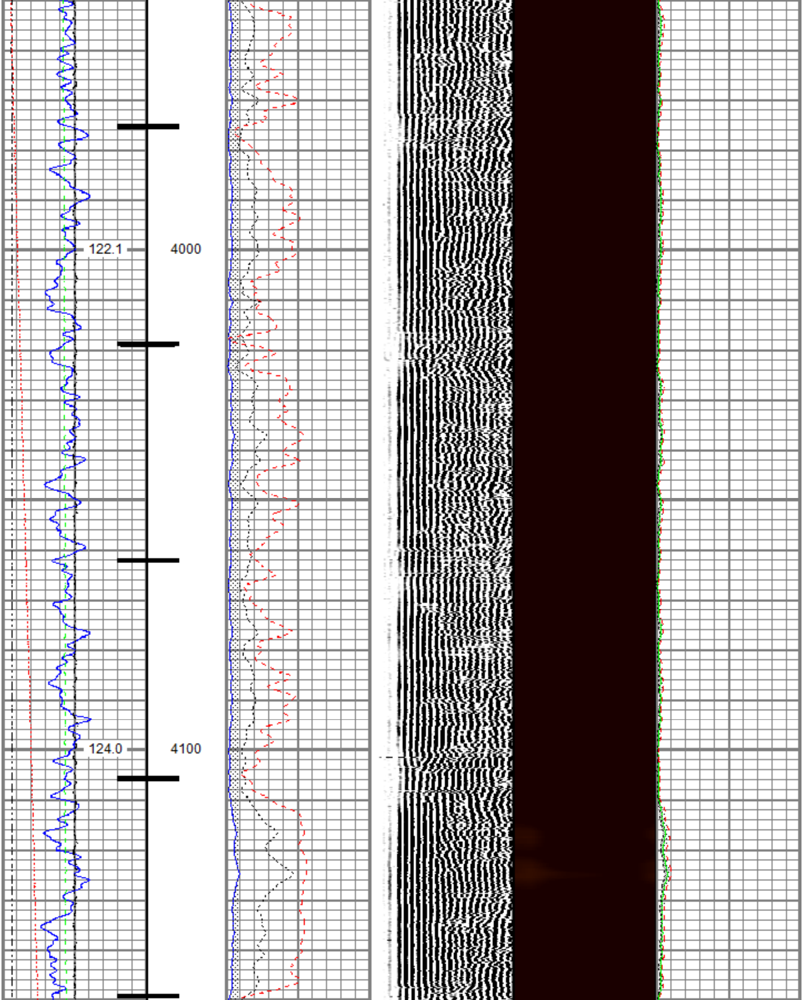
Main Pass

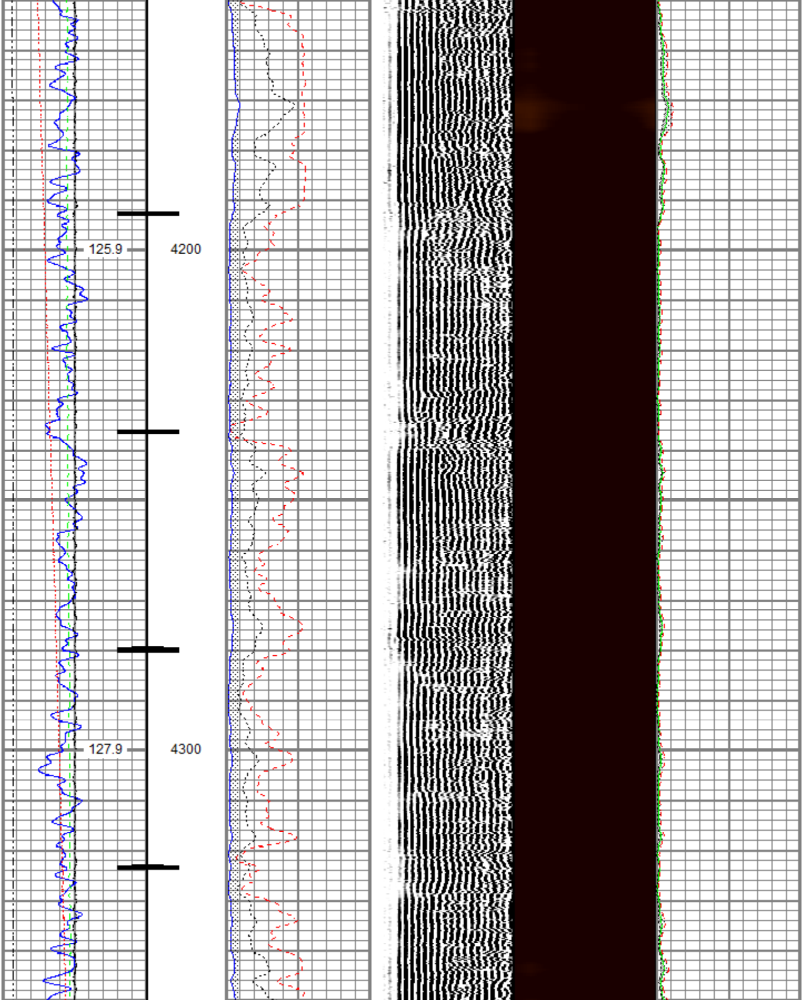
Recorded with 0 PSI Surface Induced Pressure

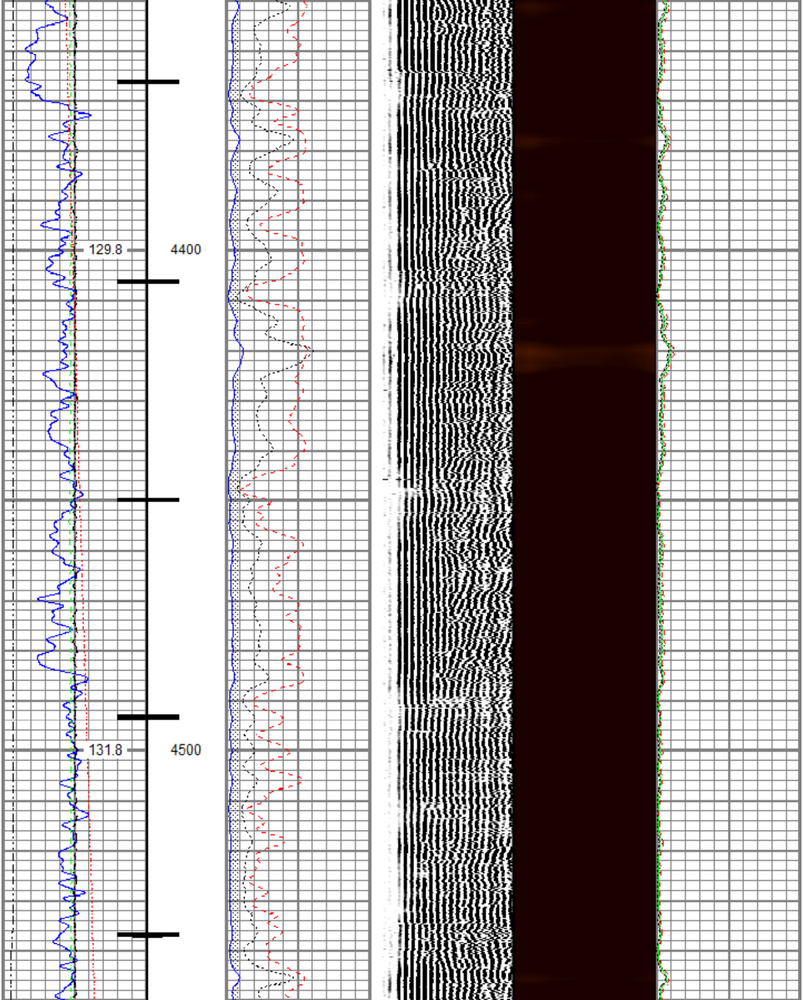
Database File	tep_federal pa 334-24_rbl_10-14-18\processed_tep_federal pa 334-24_rbl_10-14-18.db
Dataset Pathname	main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Sun Oct 14 15:56:36 2018
Charted by	Depth in Feet scaled 1:240

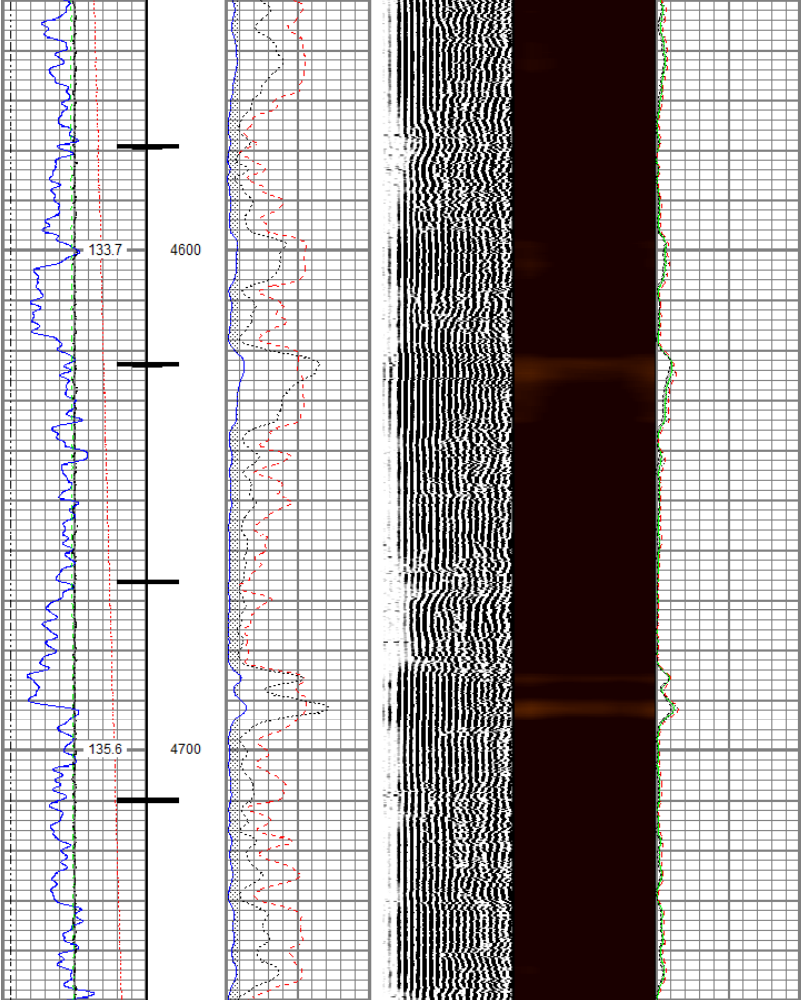
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			MimimumAmplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			MaximumAmplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature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

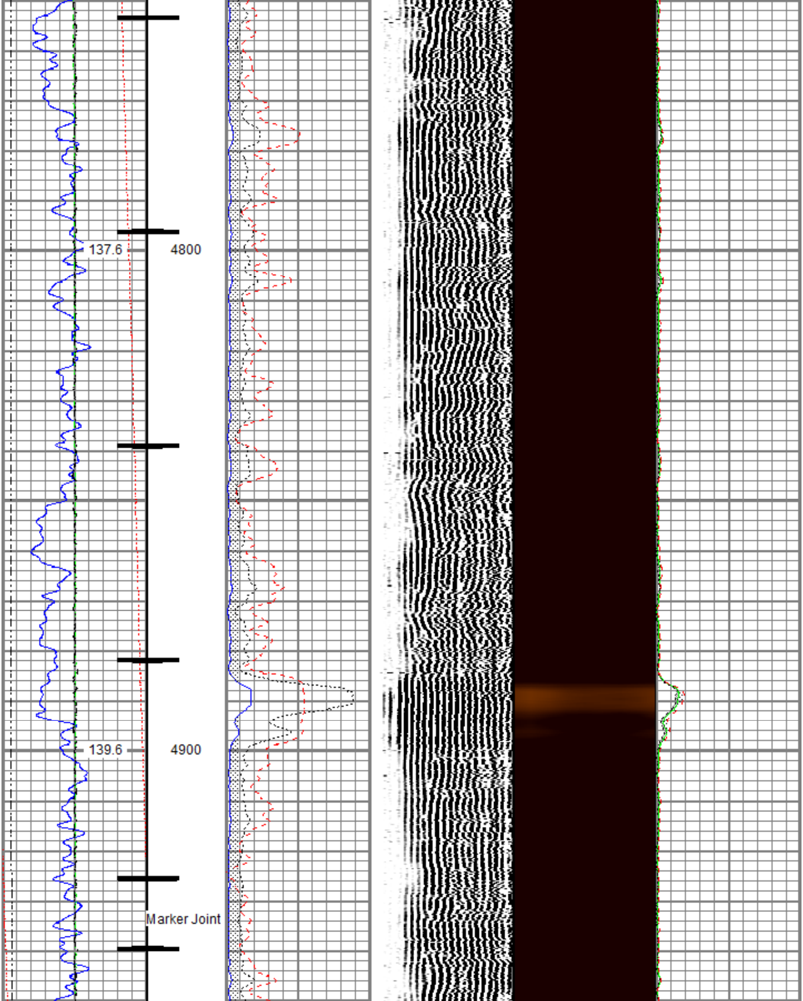

118.4
3800
120.2
3900

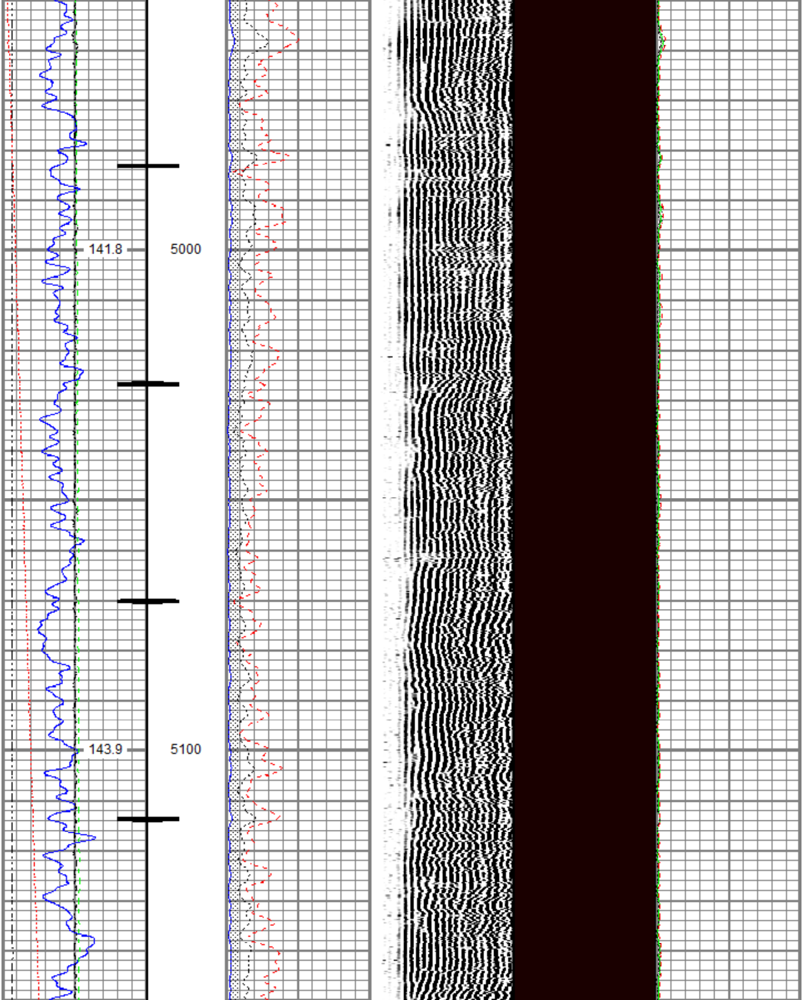

122.1
4000
124.0
4100

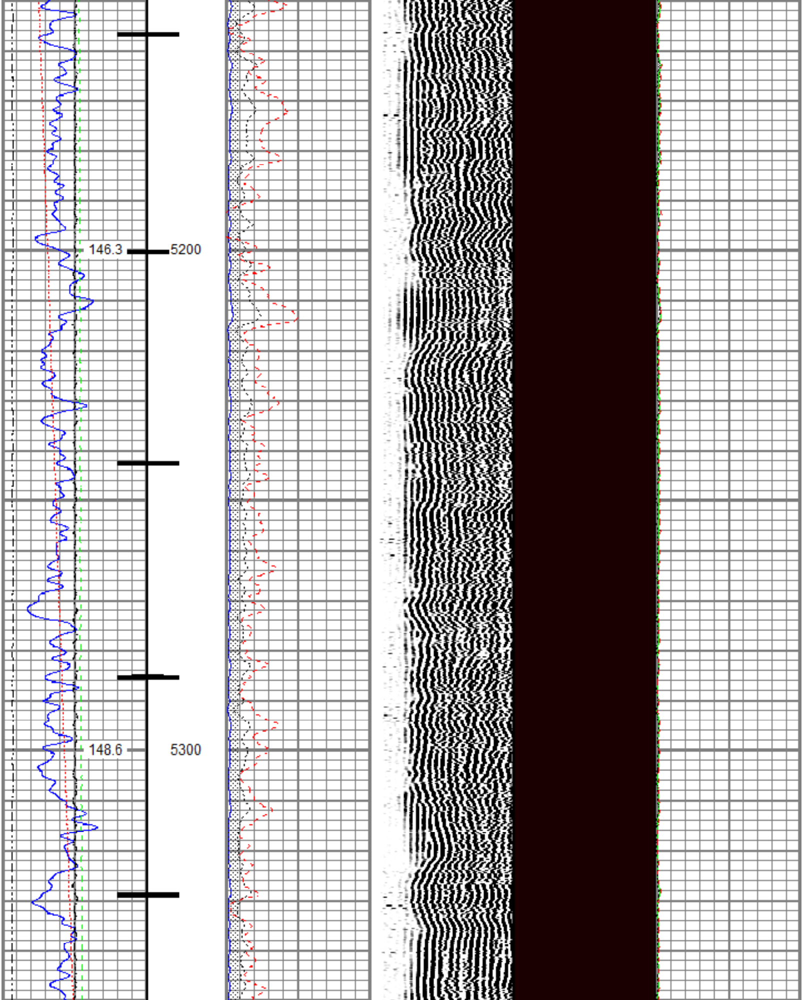

125.9
4200
127.9
4300

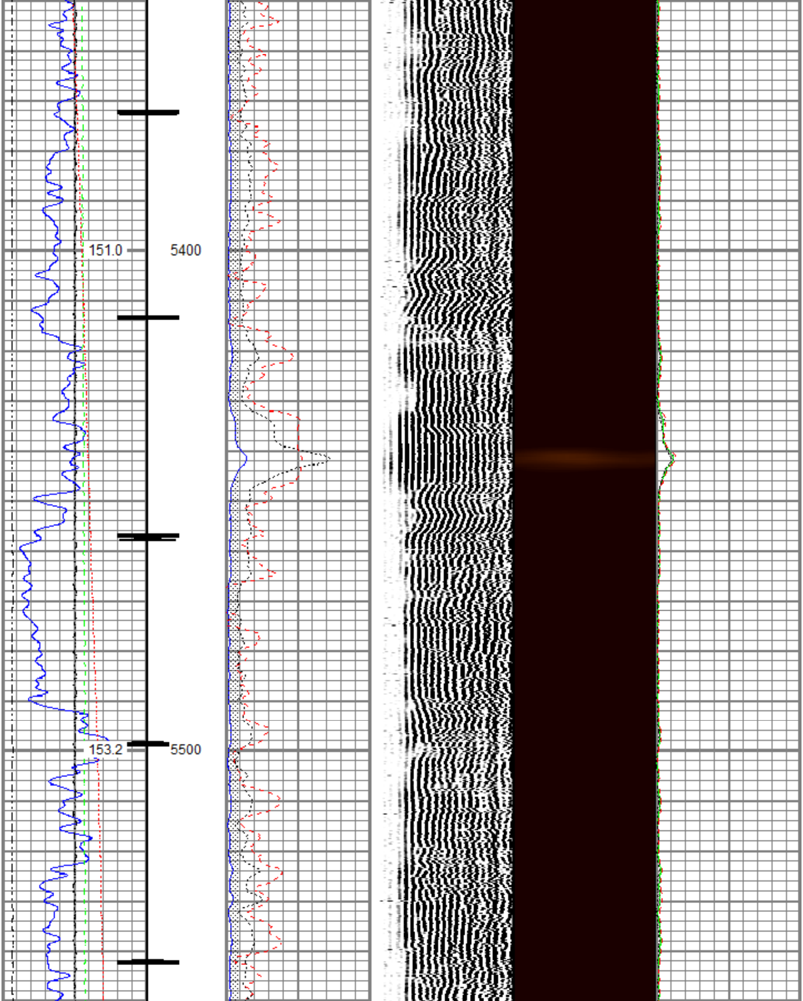

129.8
4400
131.8
4500

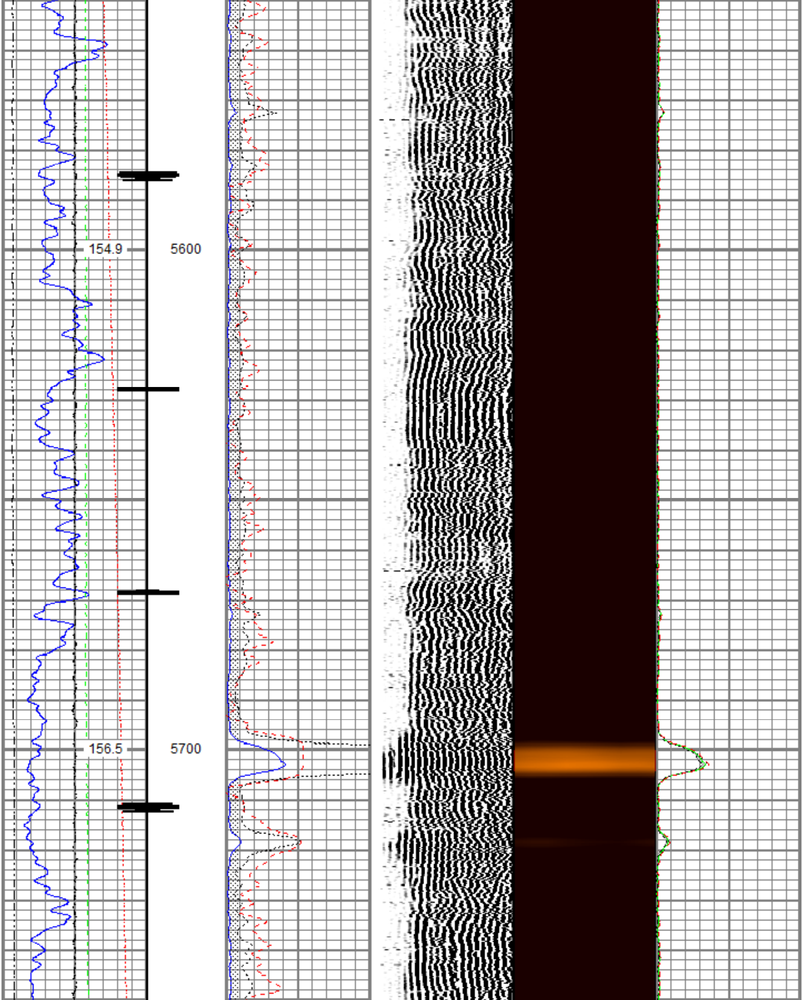

133.7
4600
135.6
4700

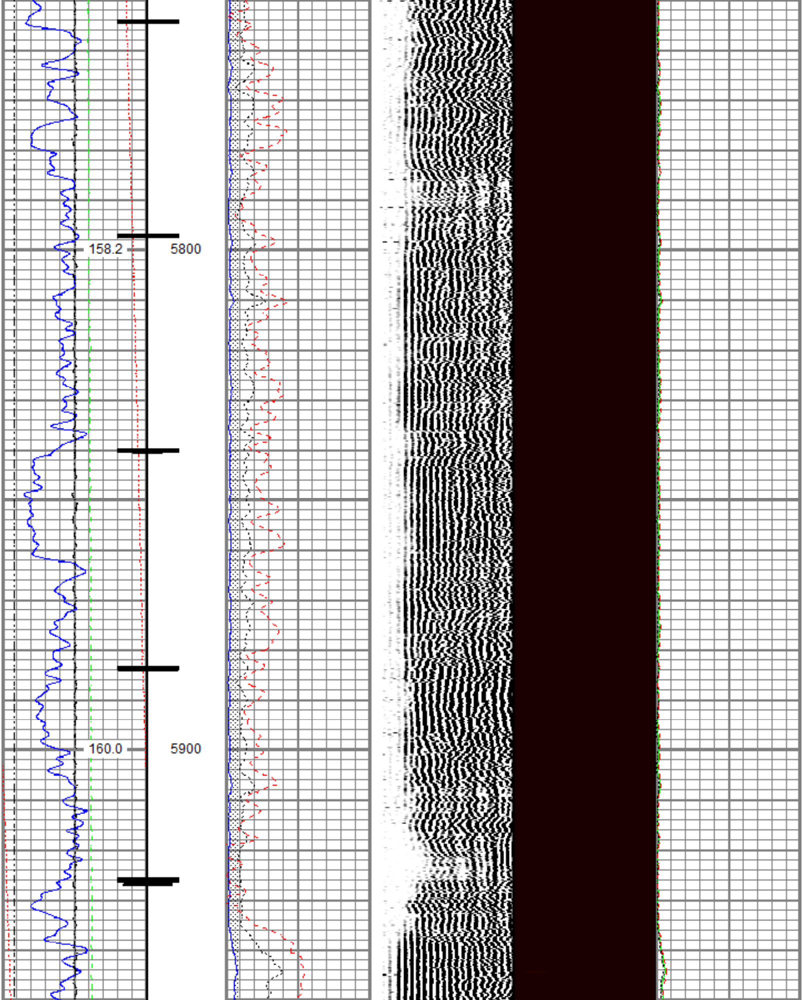

137.6
4800
139.6
4900
Marker Joint

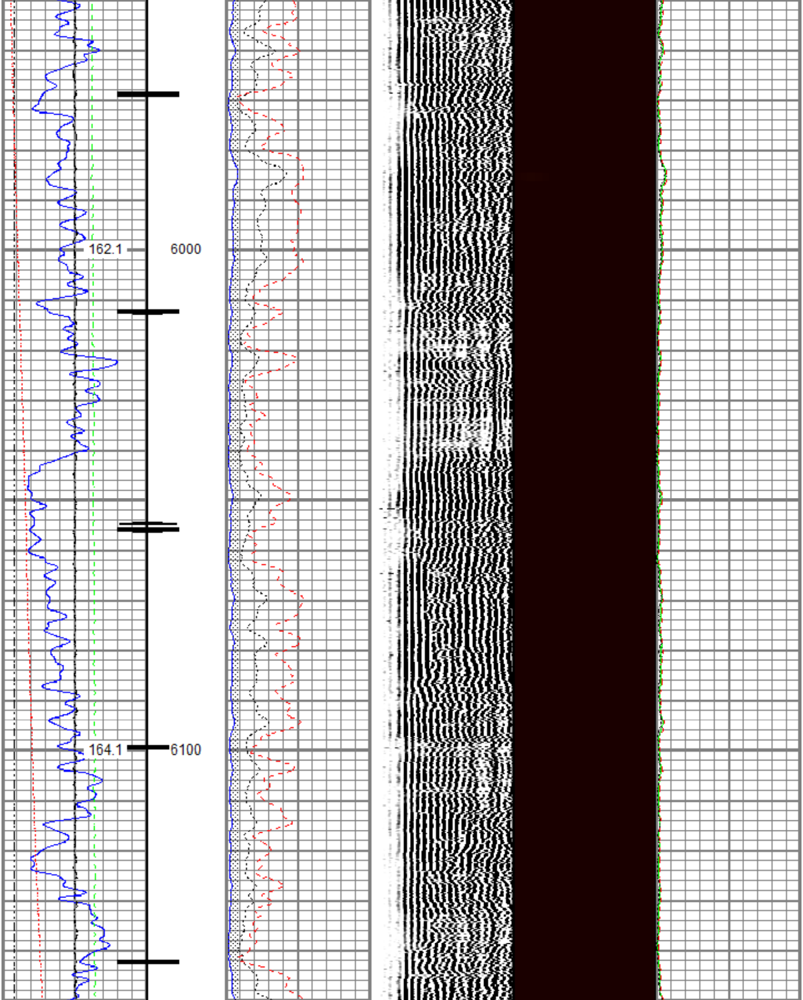

141.8
5000
143.9
5100

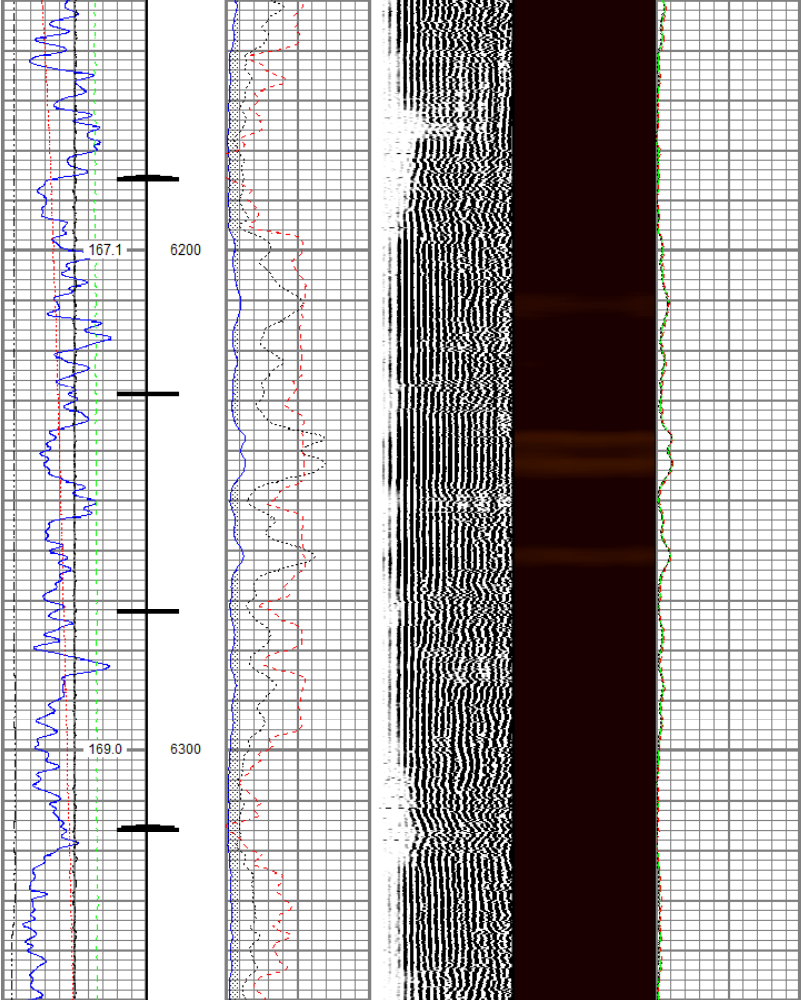

146.3
5200
148.6
5300

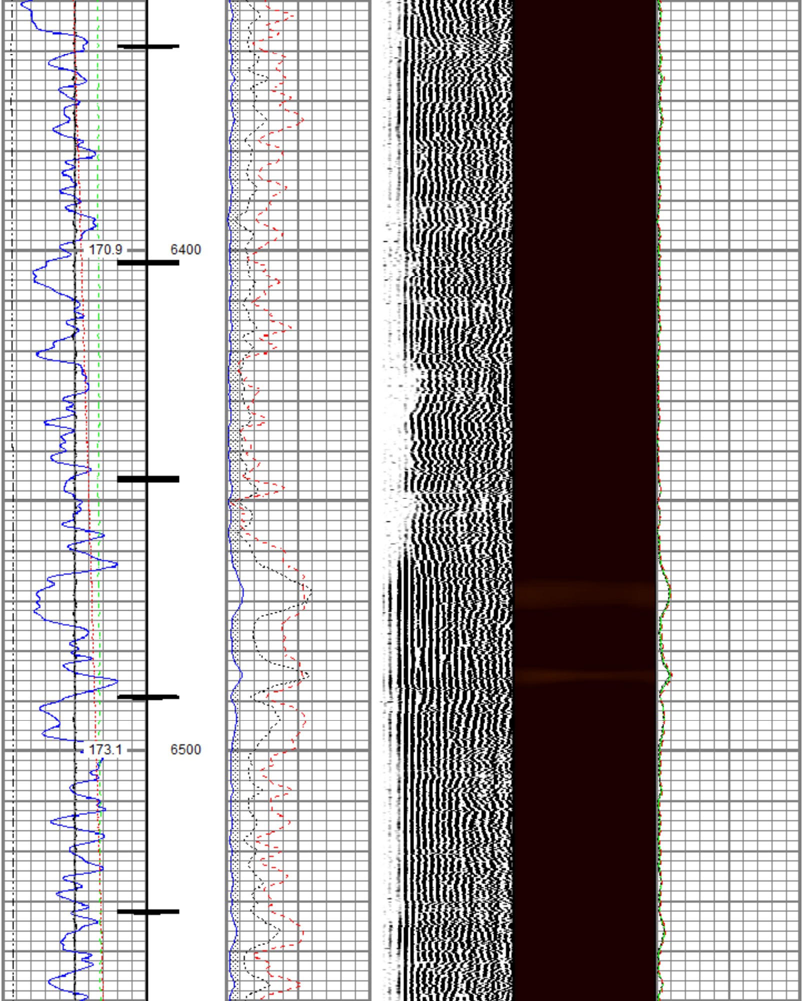

151.0
5400
153.2
5500

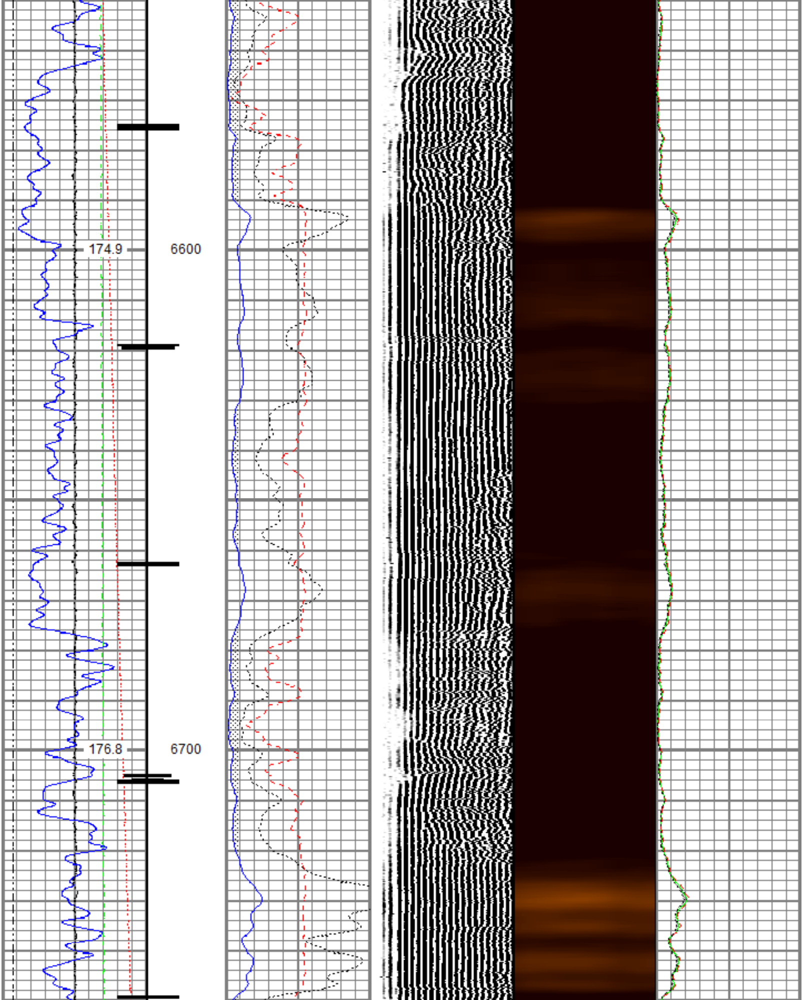

154.9
5600
156.5
5700

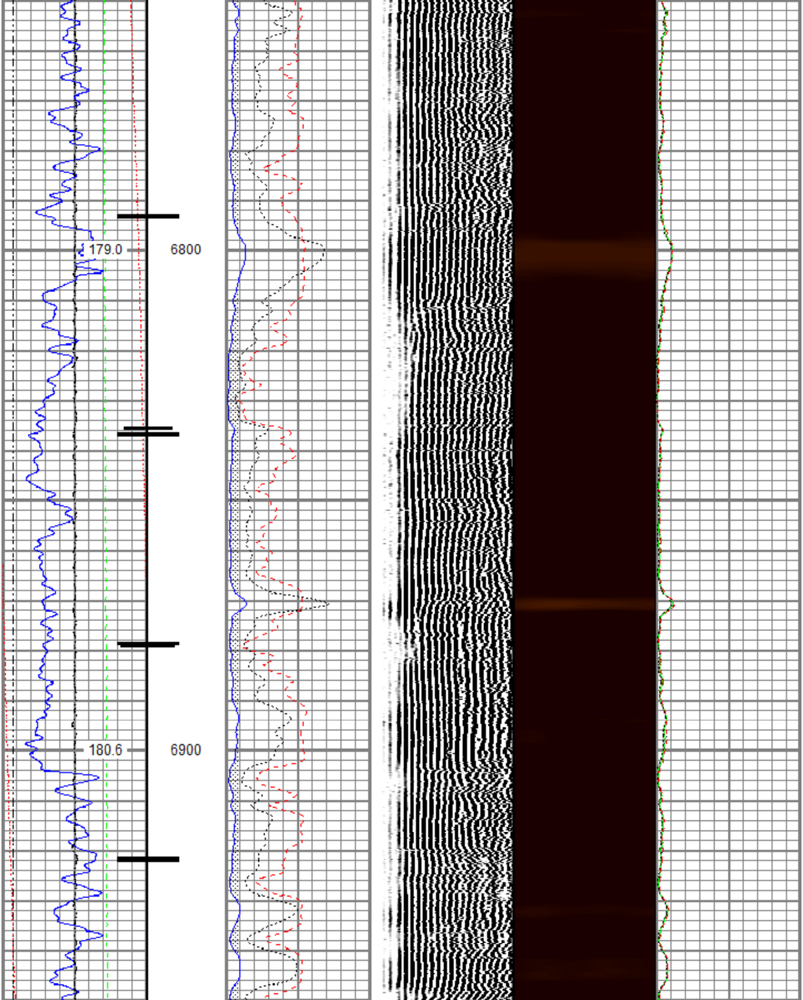

158.2
5800
160.0
5900

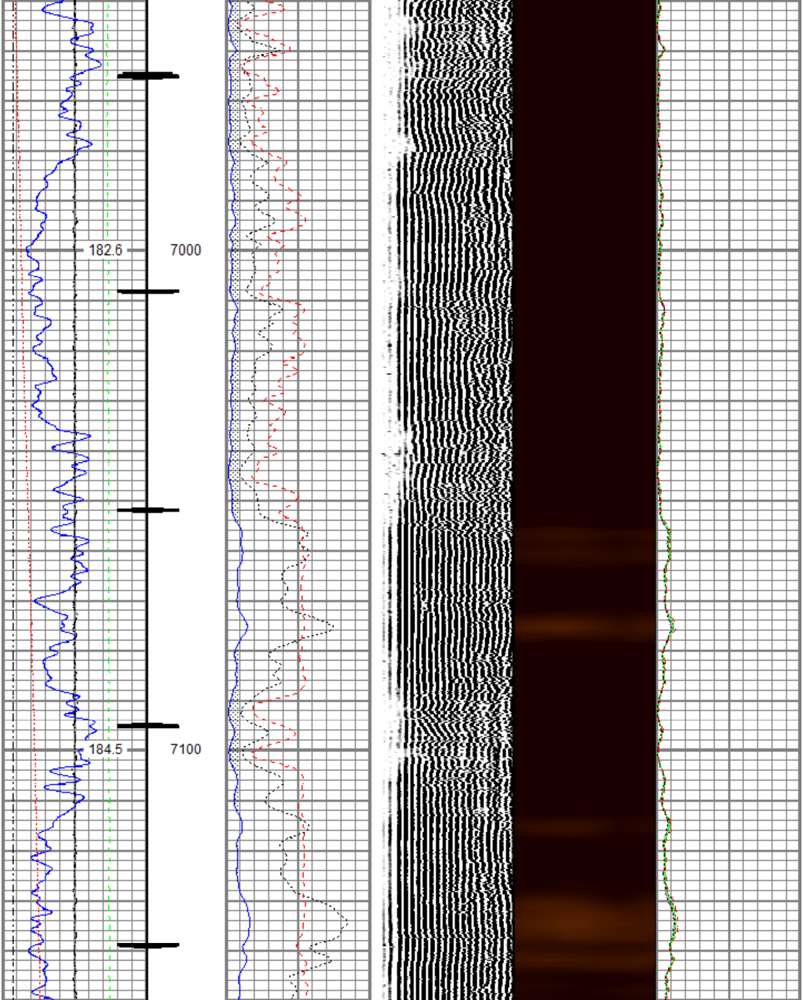

162.1
6000
164.1
6100


167.1
6200
169.0
6300

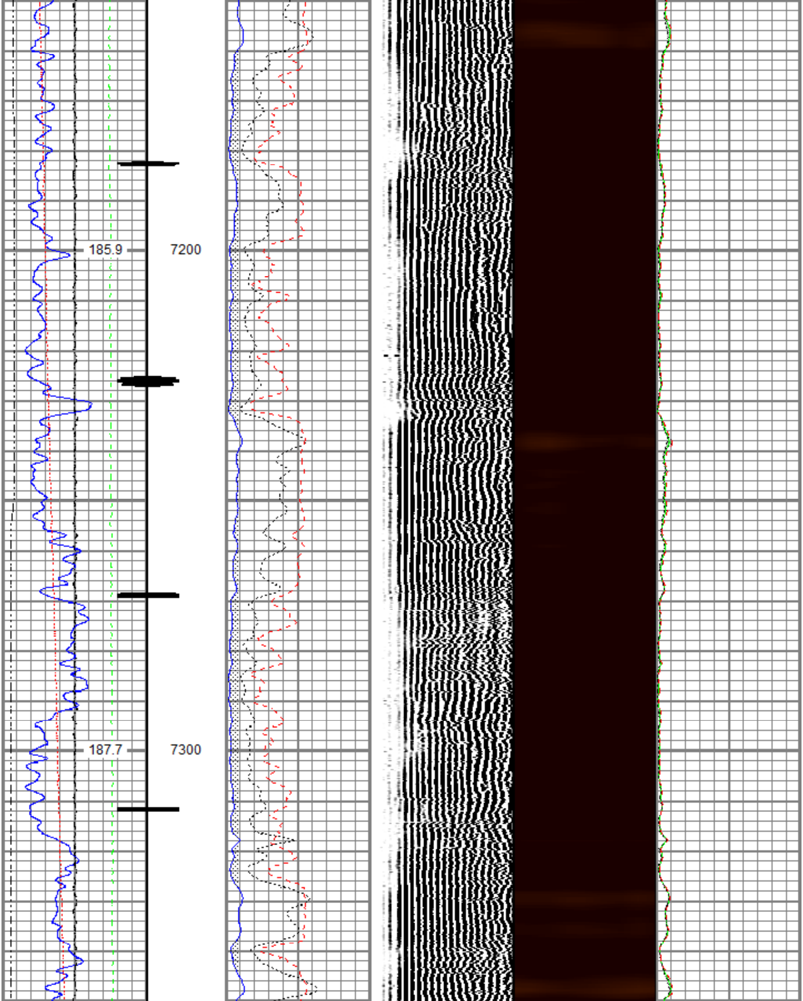

170.9
6400
173.1
6500

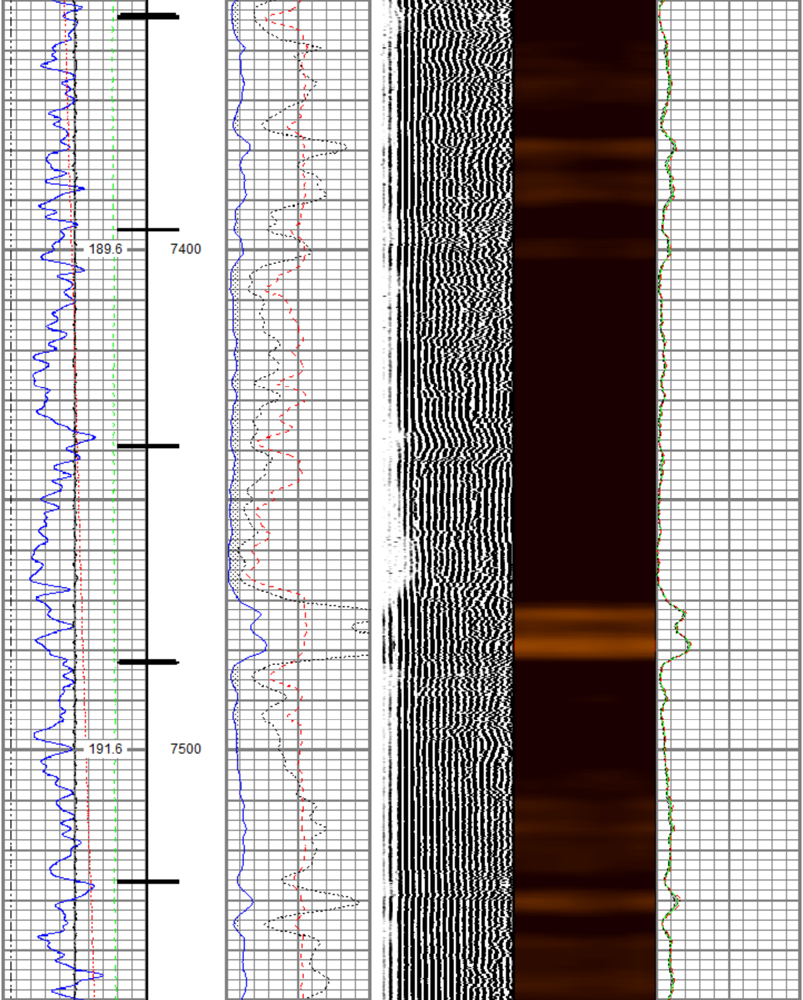

174.9
6600
176.8
6700

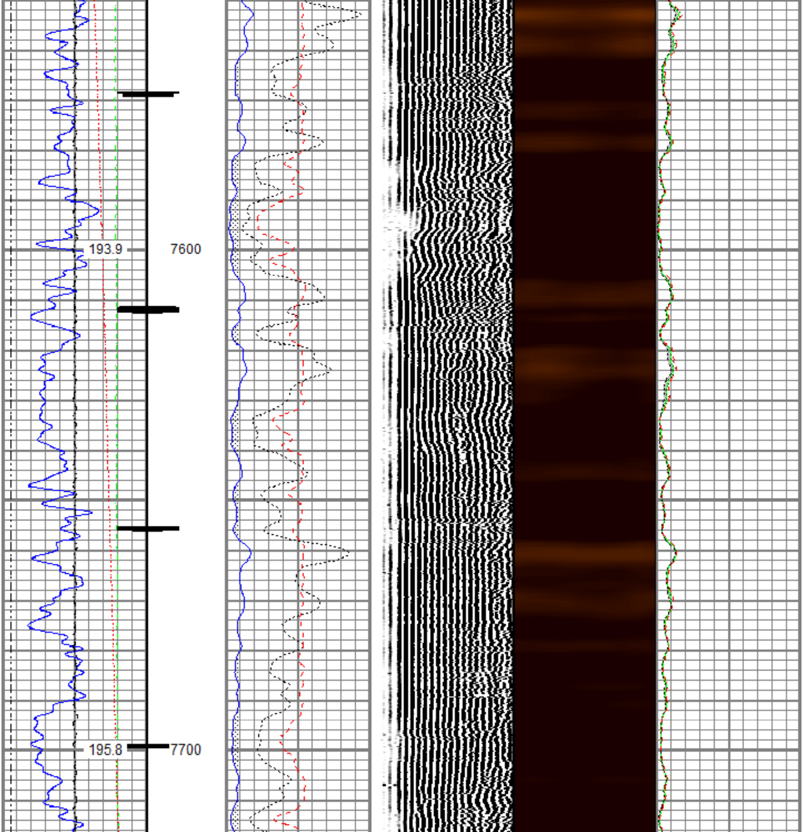

179.0
6800
180.6
6900



182.6
7000
184.5
7100


185.9
7200
187.7
7300


189.6
7400
191.6
7500


193.9
7600
195.8
7700

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
10 CCL 0

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

Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_federal pa 334-24_rbl_10-14-18\processed_tep_federal pa 334-24_rbl_10-14-18.db
Dataset Pathname	repeat.2
Presentation Format	ros_rbt004_tep
Dataset Creation	Sun Oct 14 16:02:02 2018
Charted by	Depth in Feet scaled 1:240

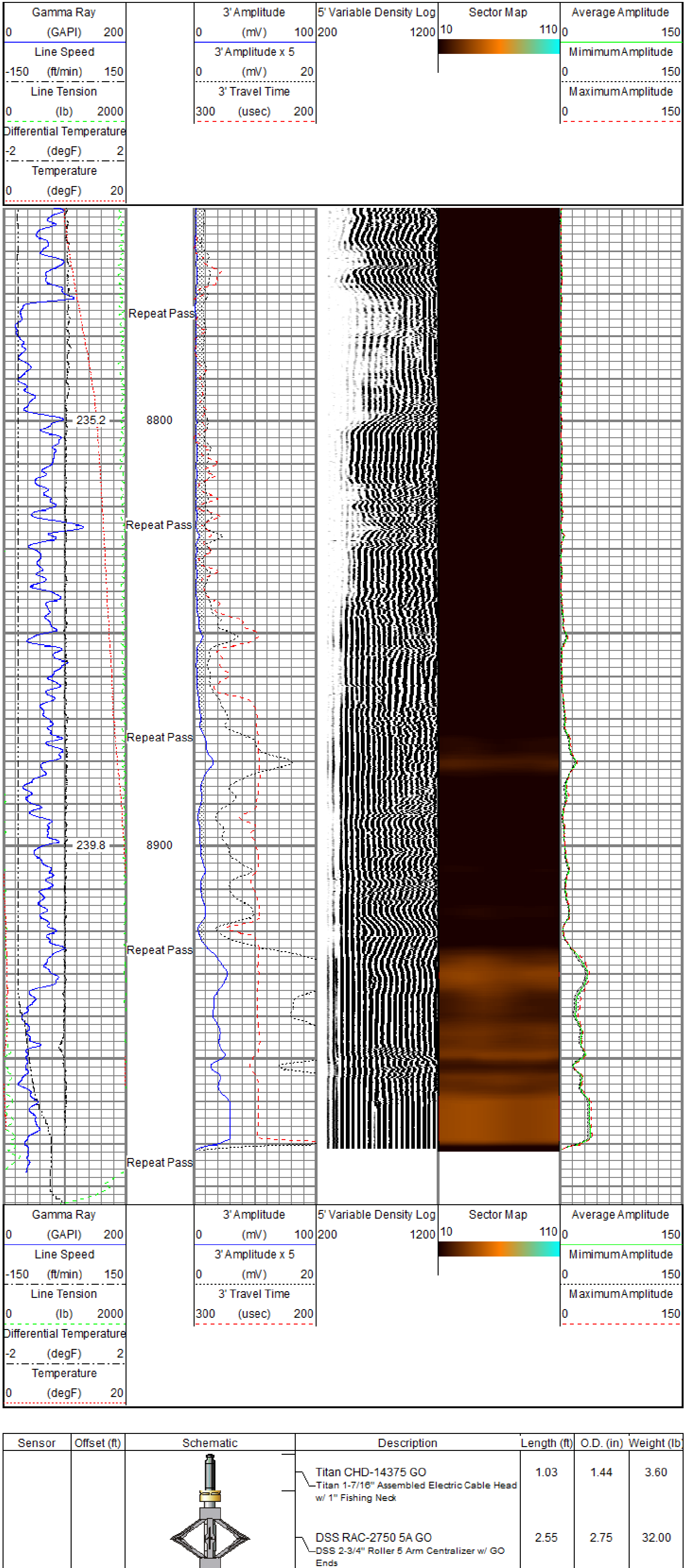
Gamma Ray 0 (GAPI) 200
Line Speed -150 (ft/min) 150
Line Tension 0 (lb) 2000
Differential Temperature -2 (degF) 2
Temperature 0 (degF) 20

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



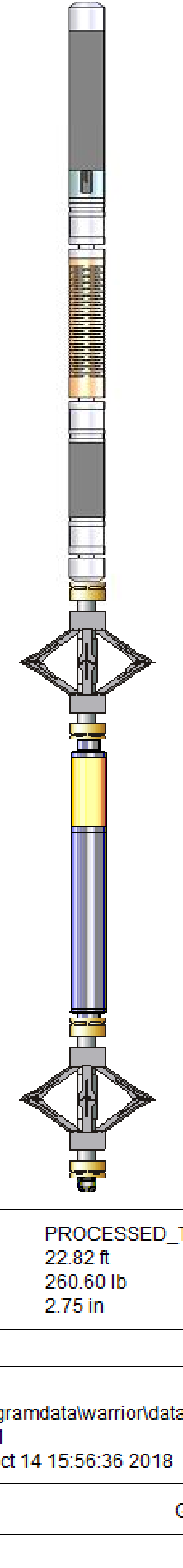
Gamma Ray 0 (GAPI) 200
Line Speed -150 (ft/min) 150
Line Tension 0 (lb) 2000
Differential Temperature -2 (degF) 2
Temperature 0 (degF) 20

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					
WVFS8	14.10		Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
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		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					
GR	5.18		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 334-24_RBL_10-14-18.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 334-24_rbl_10-14-18\processed_tep_federal pa 334-24_rbl_10-
Dataset Pathname	main.1
Dataset Creation	Sun Oct 14 15:56:36 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:	52.751	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.001	0.895	0.800	81.196	89.731	0.926
CAL	-0.005	0.761				
5'	-0.038	0.695	0.800	81.196	109.801	4.929
SUM						
S1	-0.008	0.859	0.000	100.000	115.337	0.884
S2	-0.005	0.884	0.000	100.000	112.477	0.557
S3	-0.004	0.932	0.000	100.000	106.908	0.399
S4	-0.005	1.013	0.000	100.000	98.297	0.463
S5	-0.009	1.037	0.000	100.000	95.630	0.843
S6	-0.006	0.969	0.000	100.000	102.536	0.642
S7	-0.009	0.895	0.000	100.000	110.648	0.962
S8	-0.004	0.856	0.000	100.000	116.296	0.429

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.005	0.761	1.000	0.000

Air Zero Calibration, performed Sun Oct 14 08:27:43 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.005	0.000	0.000
5'	-0.000	0.000	-0.001
SUM			
S1	-0.007	0.000	0.000
S2	-0.004	0.000	0.000
S3	-0.004	0.000	0.001
S4	-0.004	0.000	-0.000
S5	-0.003	0.000	-0.000
S6	-0.004	0.000	-0.000
S7	-0.004	0.000	0.000
S8	-0.004	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	

Company	TEP Rocky Mountain LLC
Well	Federal PA 334-24
Field	Parachute
County	Garfield
State	Colorado