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OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal GM 313-4
Field	Grand Valley
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal GM 313-4
Field Grand Valley
County Garfield State Colorado
Location: API # : 05-045-23504
753' FSL & 892' FEL SWNE
SEC 5 TWP 7S RGE 96W

Other Services
PDN

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

Date	02-OCT-2017
Run Number	One
Depth Driller	7288 FT
Depth Logger	7234 FT
Bottom Logged Interval	7234 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	210°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	10:15
Equipment Number	HD-359
Location	Grand Junction, CO
Recorded By	J.Donnelly
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	1015 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	7242 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 at 5284 FT - 5305 FT
Log ran from 7234 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 313-4_rbl_10-02-17\processed_tep_federal gm 313-4_rbl_10-02-17.db
Dataset Pathname	main.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Oct 04 10:48:01 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) 20				

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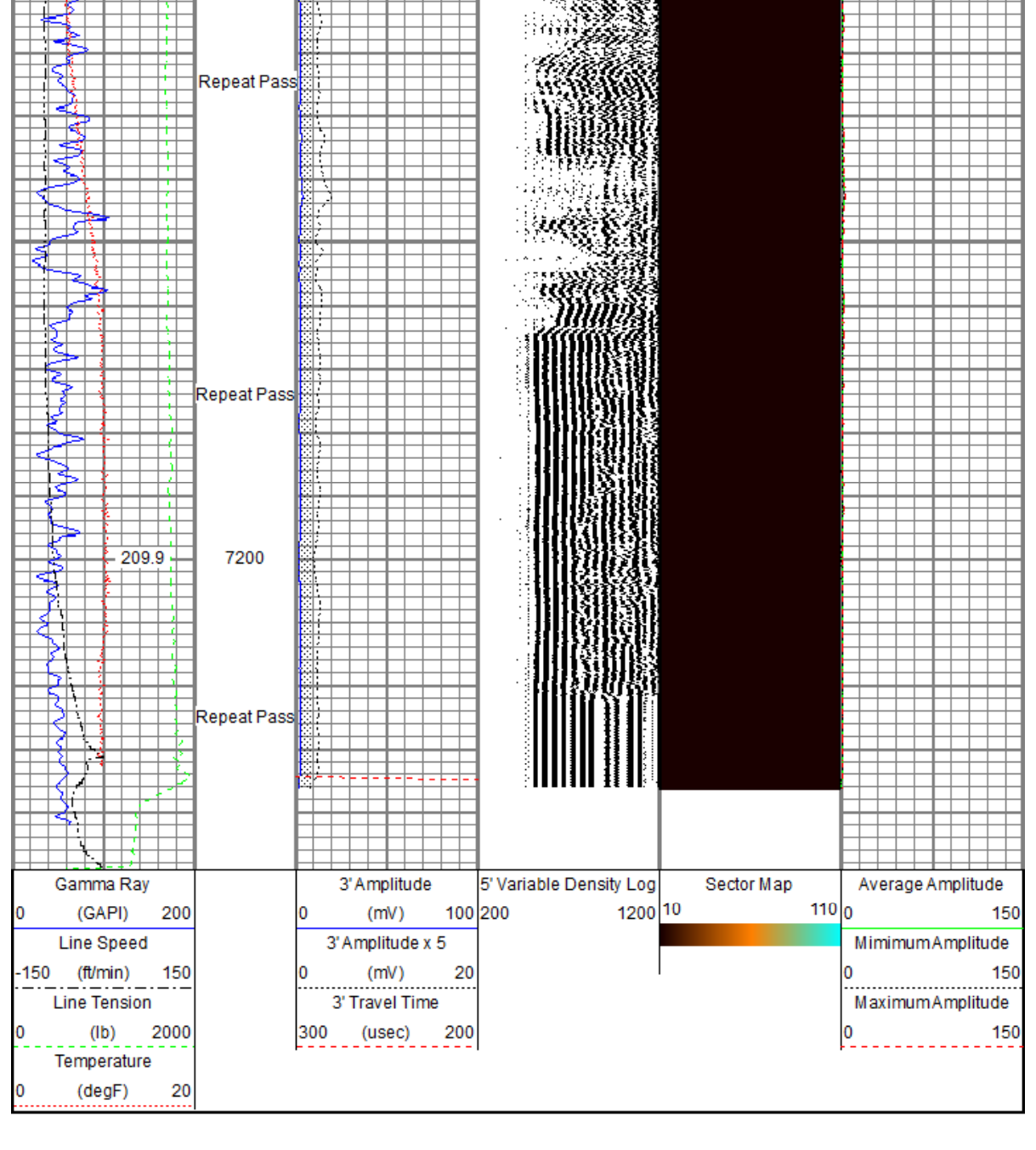
Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_federal gm 313-4_rbl_10-02-17\processed_tep_federal gm 313-4_rbl_10-02-17.db
Dataset Pathname	Repeat.1
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Oct 04 11:00:54 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
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
Temperature				
0 (degF) 20				



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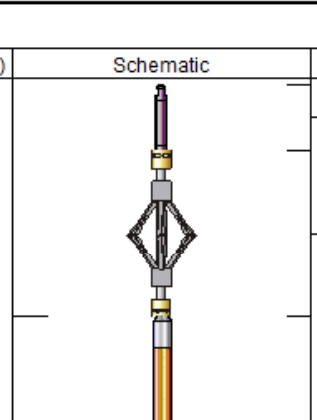
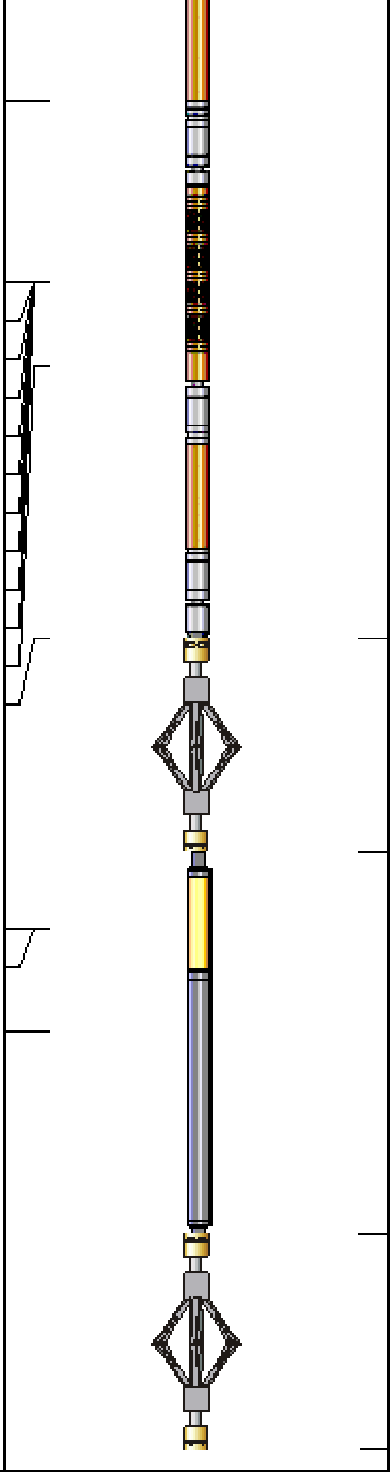
0 (GAPI) 200	0 (mV) 100	200 1200	10 110	0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Temperature				
0 (degF) 20				

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	1.03	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
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
DCCL	6.18
CCL	6.18
GR	4.96



Probe_RADII-C-P_RBT_2750 (FW1305-099.19 Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe		2.75	105.00
DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
Probe_GR_CCL-P_CGR_2750_S (FW1214.541) Probe 2-3/4" Digital CCL / Gamma Ray Combined		2.75	55.00
DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00

Dataset:	PROCESSED_TEP_Federal GM 313-4_RBL_10-02-17.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 313-4_rbl_10-02-17\processed_tep_federal gm 313-4_rbl_10-02
Dataset Pathname	main.1
Dataset Creation	Wed Oct 04 10:48:01 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:	230.397	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.007	0.689	0.800	81.196	115.636	1.561
CAL	-0.006	0.755				
5'	-0.002	0.487	0.800	81.196	164.391	1.066
SUM						
S1	-0.008	0.779	0.000	100.000	127.125	1.009
S2	-0.004	0.762	0.000	100.000	130.575	0.555
S3	-0.005	0.767	0.000	100.000	129.542	0.618
S4	-0.004	0.780	0.000	100.000	127.530	0.497
S5	-0.004	0.783	0.000	100.000	127.002	0.517
S6	-0.004	0.783	0.000	100.000	126.979	0.517
S7	-0.004	0.790	0.000	100.000	126.052	0.481
S8	-0.004	0.791	0.000	100.000	125.776	0.515

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	-0.006	0.755	1.000	0.000

Air Zero Calibration, performed Tue Sep 12 14:14:19 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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