Pulsed Neutron
Gamma Ray
Casing Collar Log

RELIANCE OILFIELD SERVICES

Company TEP Rocky Mountain LLC
Well Federal RWF 22-12
Field Rulison
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC
Well	Federal RWF 22-12
Field	Rulison
County	Garfield
State	Colorado

Location: API # : 05-045-24279

SEC 12 TWP 6S RGE 94W

Other Services: RBL

Permanent Datum	Ground Level	Elevation	5466.8'
Log Measured From	Kelly Bushing	24 FT	
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 5490.8'
D.F. 5489.8'
G.L. 5466.8'

Date	31-JAN-2020		
Run Number	One		
Depth Driller	8879 FT		
Depth Logger	8851 FT		
Bottom Logged Interval	8844 FT		
Top Log Interval	4503 FT		
Open Hole Size	8.750"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	---		
Estimated Cement Top	---		
Time Well Ready	---		
Time Logger on Bottom	---		
Equipment Number	HD-0359		
Location	Grand Junction, CO		
Recorded By	J. Donnelly		
Witnessed By	---		

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	1042 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8838 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 Reliance Bond Log dated 30-JAN-2020
Log ran from 8844 FT to 4503 FT
Pulsed Neutron data logged with the Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!!

Main Pass

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Database File	f:\data\tep\federal rwf 22-12\pn\tep_federal rwf 22-12_pn_01-31-20.db
Dataset Pathname	runSHIFTED/merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Sun Feb 02 10:20:25 2020
Charted by	Depth in Feet scaled 1:240

0	GR (GAPI)	150	4	RNF2	0	
	PN Casing Collar Locator		60	SIGMA (cu)	0	
-100	Line Speed (ft/min)	100	4.5	RNFI	-1	
0	NIRS (cps)	400000	1	PN Porosity (Sandstone)	0	FIS2
0	BKGN (cps)	4000				0 (cps) 45000
0	BKGF (cps)	2000				NIS2
						0 (cps100000

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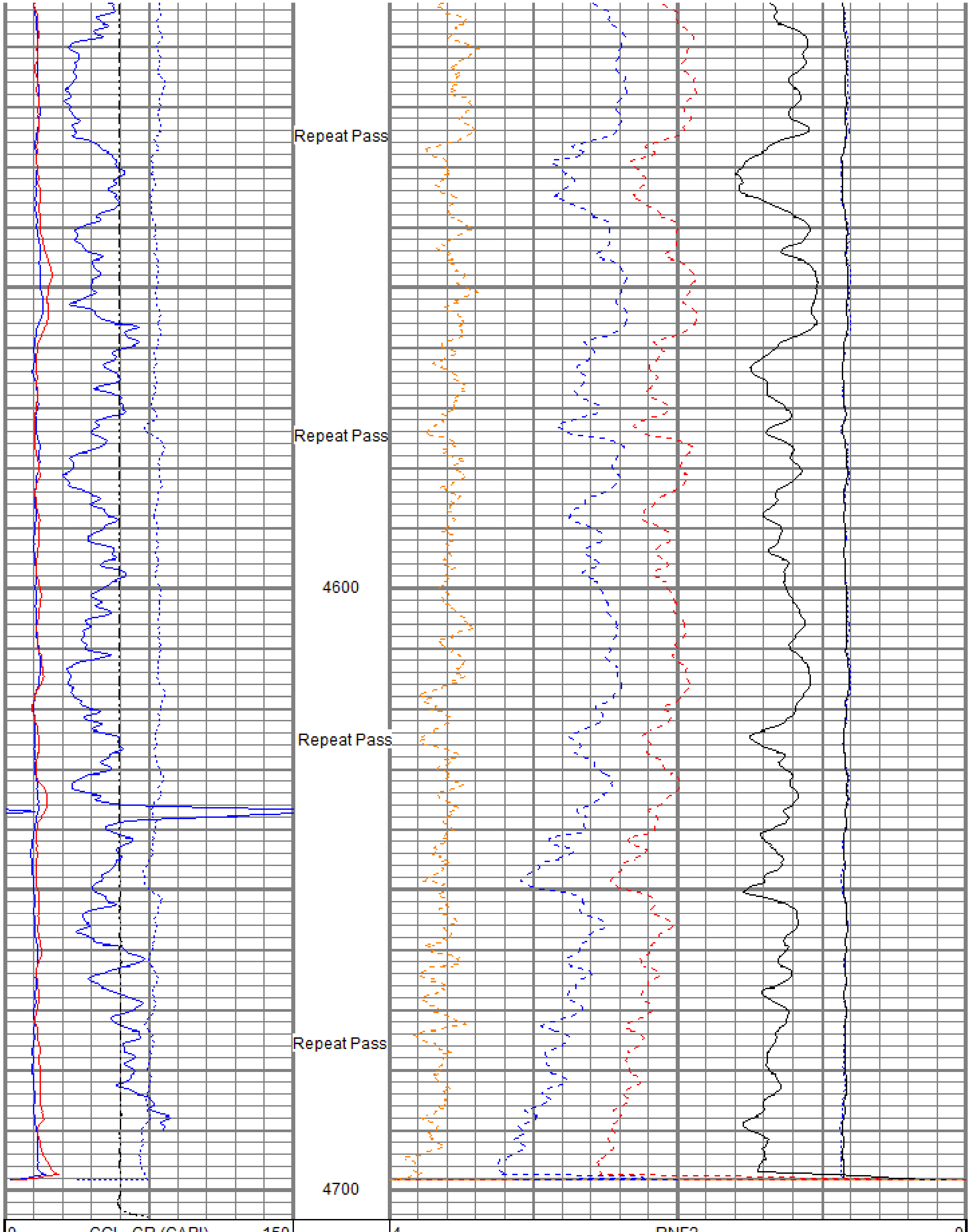
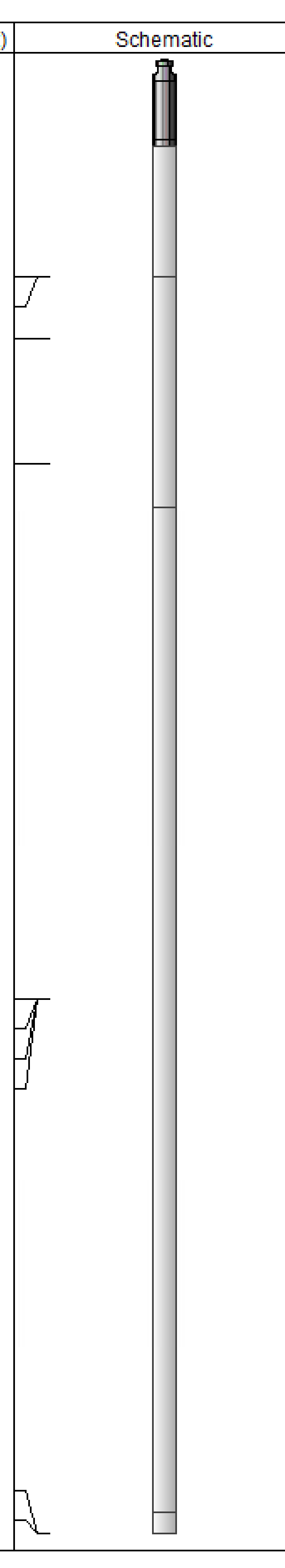
Repeat Pass

Database File f:\data\tep\federal rwf 22-12\pn\tep_federal rwf 22-12_pn_01-31-20.db
Dataset Pathname Repeat.2
Presentation Format ros_pdn_hunter
Dataset Creation Fri Jan 31 07:50:04 2020
Charted by Depth in Feet scaled 1:240

0	GCL_GR (GAPI)	150	4	RNF2	0	
-100	Line Speed (ft/min)	100	60	SIGMA (cu)	0	
0	NIRS (cps)	400000	4.5	RNFI	-1	
0	BKGN (cps)	4000		PN Porosity (Sandstone)		FIS2
0	BKGF (cps)	2000	1	(Porosity Decimal Fraction)	0	0 (cps) 45000
						NIS2
						0 (cps100000



0	GCL_GR (GAPI)	150	4	RNF2	0	
-100	Line Speed (ft/min)	100	60	SIGMA (cu)	0	
0	NIRS (cps)	400000	4.5	RNFI	-1	
0	BKGN (cps)	4000		PN Porosity (Sandstone)		FIS2
0	BKGF (cps)	2000	1	(Porosity Decimal Fraction)	0	0 (cps) 45000
						NIS2
						0 (cps100000

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-16875 GO Titan 1-11/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.69	5.40
TCUTEMP TCUVOLT GCL_CCL	14.69 14.69 13.97		HWS_TCU-001 (000279) HWS Telemetry Control Unit	1.52	1.69	7.80
GCL_GR	12.50		HWS_GCL-001 (001681) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
Long Far Near Anci	6.25 6.25 6.25 6.25		HWS_RAS-RAS002 (003040) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
LOCTIM UTCTIM	0.00 0.00		HWS_TBN-001 (001724) HWS Terminator Bull Nose (1.6875")	0.25	1.69	0.99

Dataset: tep_federal rwf 22-12_pn_01-31-20.db: field/well/run1/Main.2
Total length: 17.24 ft
Total weight: 83.41 lb
O.D.: 1.69 in

Calibration Report

Database File f:\data\tep\federal rwf 22-12\pn\tep_federal rwf 22-12_pn_01-31-20.db
Dataset Pathname Main.2
Dataset Creation Fri Jan 31 07:56:36 2020

RAS Calibration Report

Calibration Date: Fri Nov 01 14:23 2019 Meas #: 003040

Water Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	23.1	24.3	0.31
Sigma Far	SIGF	22.8	23.5	0.38
Ratio Near-Long Capture	RNL2	5.79	6.42	0.07
Ratio Near-Long Burst	RNLB	6.49	6.65	0.04
Ratio Near-Far Capture	RNF2	1.85	1.99	0.02
Ratio Near-Far Burst	RNFB	2.03	2.15	0.01
Spectral Hydrogen Index	HIS2	12.84	12.91	0.19
Carbon-Oxygen Ratio	CORS	1.34	1.36	0.06
Ratio Burst-Capture Near	RNBC	1.46	1.74	0.01
Ratio Burst-Capture Far	RFBC	1.50	1.67	0.02

Hydrocarbon Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	25.7	26.7	0.32
Sigma Far	SIGF	25.1	25.6	0.46
Ratio Near-Long Capture	RNL2	1.78	2.96	0.02
Ratio Near-Long Burst	RNLB	2.57	4.34	0.02
Ratio Near-Far Capture	RNF2	0.98	1.30	0.01
Ratio Near-Far Burst	RNFB	1.30	1.65	0.01
Spectral Hydrogen Index	HIS2	16.68	17.87	0.36
Carbon-Oxygen Ratio	CORS	1.51	1.62	0.06
Ratio Burst-Capture Near	RNBC	2.23	2.44	0.02
Ratio Burst-Capture Far	RFBC	2.09	2.13	0.02

Gamma Ray Calibration Report

Serial Number:	001681	
Tool Model:	001	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	
Calibrator Reading:	1.0	
Sensitivity:	1.0000	GAPI/

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