Company TEP Rocky Mountain LLC
Well Federal PA 14-23
Field Parachute
County Garfield
State Colorado

RELIANCE
OILFIELD SERVICES

Pulsed Neutron Gamma Ray Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal PA 14-23
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-24301
SEC 26 TWP 6S RGE 95W

Other Services
RBL

Permanent Datum Ground Level Elevation 5486.3'
Log Measured From Kelly Bushing 24 FT
Drilling Measured From Kelly Bushing

Elevation
K.B. 5510.3'
D.F. 5509.3'
G.L. 5486.3'

Date	15-OCT-2020
Run Number	One
Depth Driller	9180 FT
Depth Logger	9046 FT
Bottom Logged Interval	9046 FT
Top Log Interval	5001 FT
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	---
Estimated Cement Top	---
Time Well Ready	ROA
Time Logger on Bottom	9:30
Equipment Number	HD-0331
Location	Grand Junction, CO
Recorded By	A. Ellsworth
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	1124 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9139 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 15-OCT-2020
Log ran from 9046 FT to 5001 FT
Pulsed Neutron Data logged with the Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!

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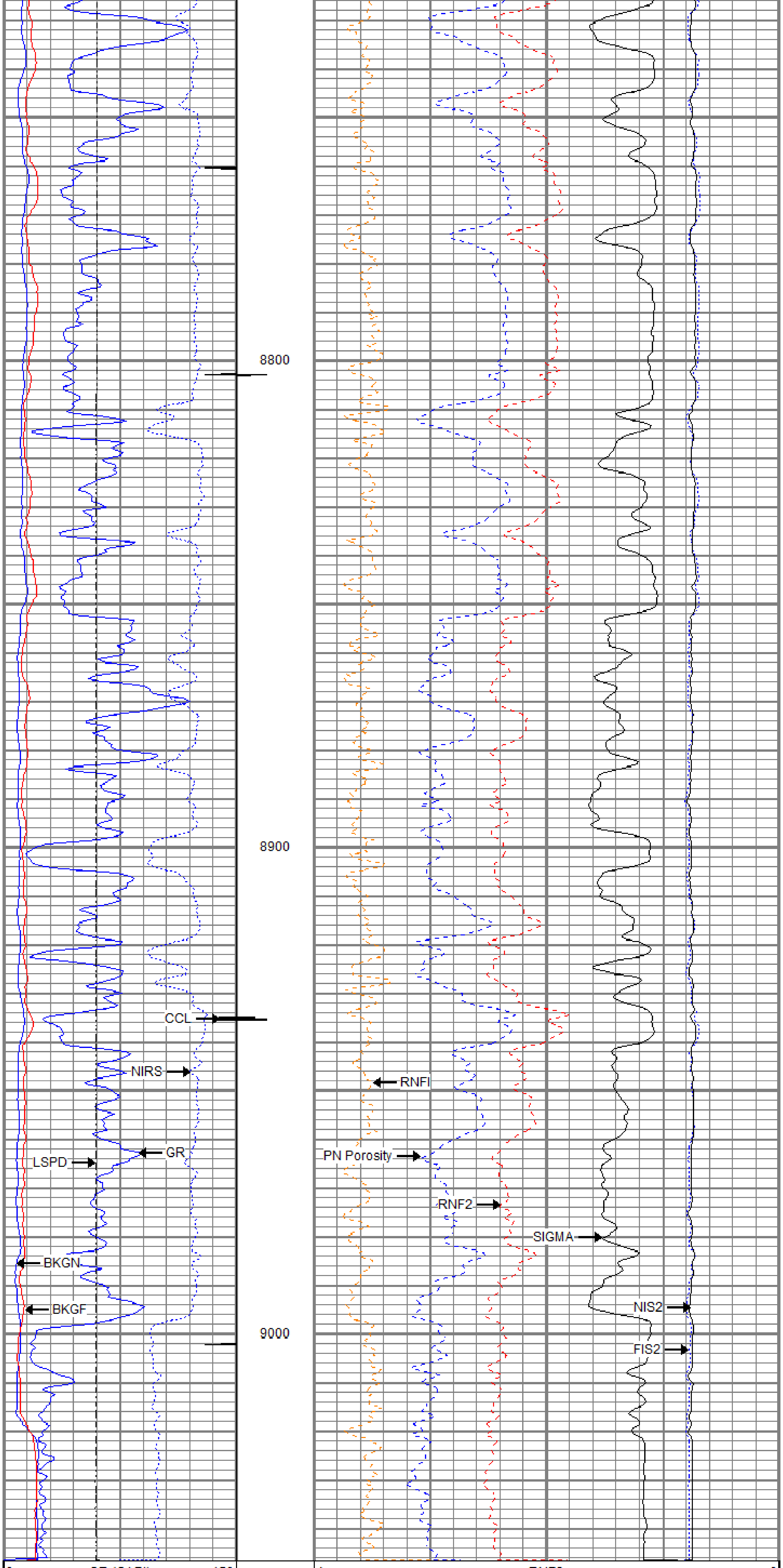
Main Pass

Database File	e:\data\tep\federal pa 14-23\pn\tep_federal pa 14-23_pn_10-15-20.db
Dataset Pathname	runSHIFTED/merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Sun Oct 18 15:07:44 2020
Charted by	Depth in Feet scaled 1:240

0 GR (GAPI) 150
PN Casing Collar Locator
-100 Line Speed (ft/min) 100
0 NIRS (cps) 400000
0 BKGN (cps) 4000
0 BKGF (cps) 2000

4 RNF2 0
60 SIGMA (cu) 0
4.5 RNFI -1
1 PN Porosity (Sandstone) 0

FIS2
0 (cps) 45000
NIS2
0 (cps100000

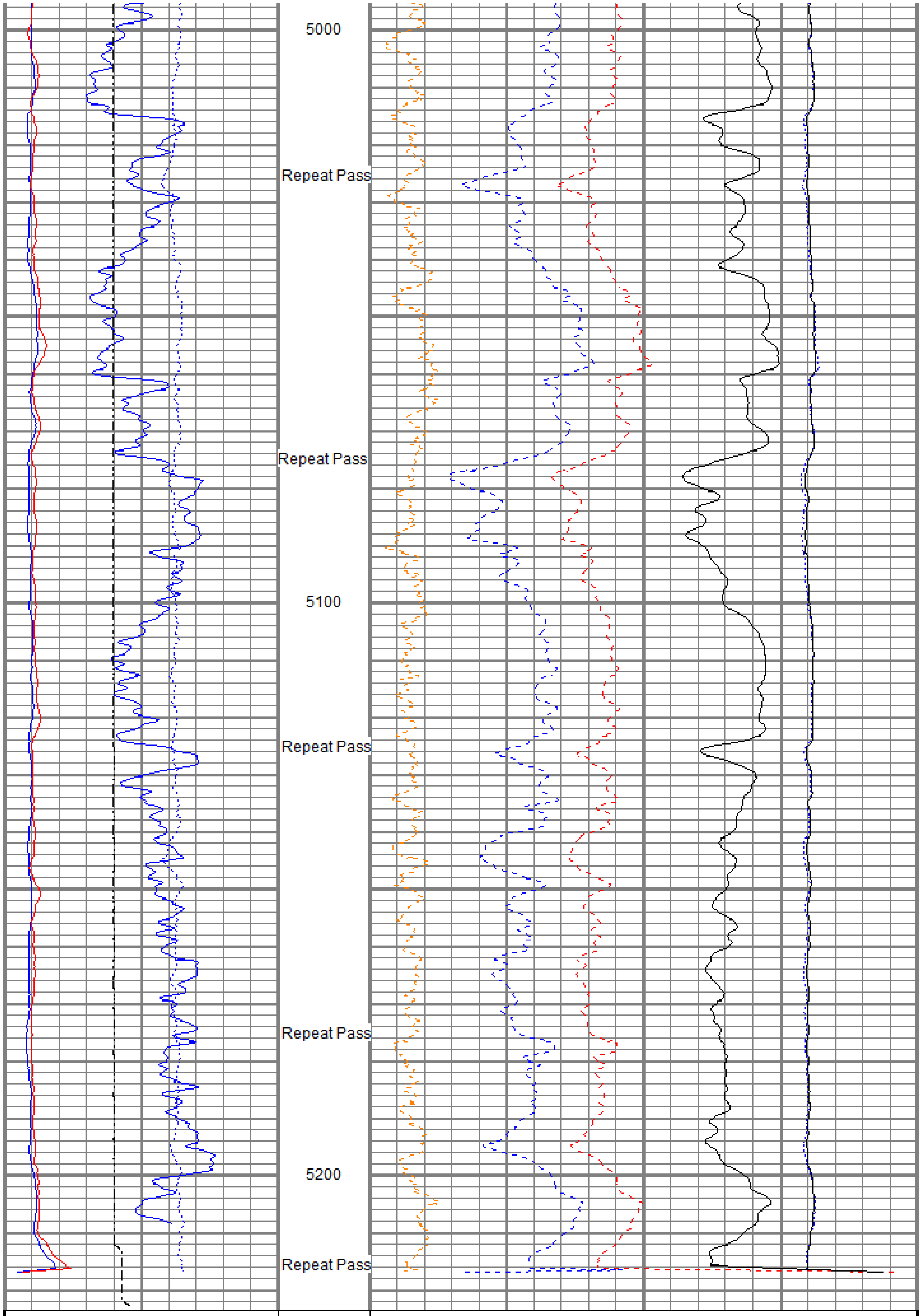


0 GR (GAPI) 150	4 RNF2 0	
PN Casing Collar Locator	60 SIGMA (cu) 0	
-100 Line Speed (ft/min) 100	4.5 RNFI -1	
0 NIRS (cps) 400000	1 PN Porosity (Sandstone) 0	FIS2 0 (cps) 45000
0 BKGN (cps) 4000		NIS2 0 (cps100000
0 BKGF (cps) 2000		

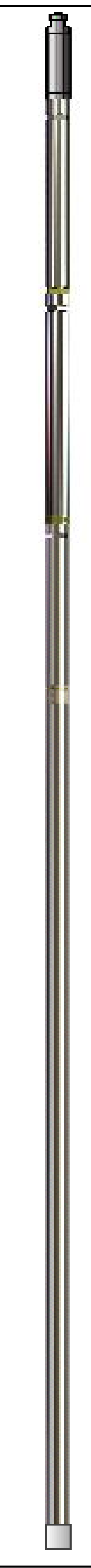
Repeat Pass

Database File e:\data\tep\federal pa 14-23\pn\tep_federal pa 14-23_pn_10-15-20.db
Dataset Pathname repeat.2
Presentation Format ros_pdn_hunter
Dataset Creation Thu Oct 15 16:54:01 2020
Charted by Depth in Feet scaled 1:240

0 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 (cps) 45000
0 BKGF (cps) 2000	1 (Porosity Decimal Fraction) 0	NIS2 0 (cps100000



0 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 (cps) 45000
0 BKGF (cps) 2000	1 (Porosity Decimal Fraction) 0	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
			HWS_TCU-002 (001705) HWS Telemetry Control Unit (TCU002)	2.30	1.69	10.87
TCUTEMP TCUVOLT GCL_CCL	14.72 14.72 14.00					
			HWS_GCL-001 (001681) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
GCL_GR	12.53					
Long Far Near Anci	6.28 6.28 6.28 6.28		HWS_RAS-RAS002 (003041) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
			HWS_BN_FLT-001 (000001) Bull Nose FLTE/CFT	0.28	1.69	0.44

Dataset: tep_federal pa 14-23_pn_10-15-20.db: field/well/run1/main1.2
Total length: 18.05 ft
Total weight: 85.93 lb
O.D.: 1.69 in

Calibration Report

Database File e:\data\tep\federal pa 14-23\pn\tep_federal pa 14-23_pn_10-15-20.db
Dataset Pathname main1.2
Dataset Creation Thu Oct 15 16:51:18 2020

RAS Calibration Report

Calibration Date: Thu Sep 09 13:11 2020 Meas#: 003040

Water Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	23.1	24.1	0.27
Sigma Far	SIGF	22.8	23.4	0.23
Ratio Near-Long Capture	RNL2	5.79	6.33	0.04
Ratio Near-Long Burst	RNLB	6.49	6.53	0.05
Ratio Near-Far Capture	RNF2	1.85	1.98	0.01
Ratio Near-Far Burst	RNFB	2.03	2.13	0.01
Spectral Hydrogen Index	HIS2	12.84	12.97	0.16
Carbon-Oxygen Ratio	CORS	1.34	1.32	0.05
Ratio Burst-Capture Near	RNBC	1.46	1.76	0.02
Ratio Burst-Capture Far	RFBC	1.50	1.70	0.01

Hydrocarbon Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	25.7	26.7	0.30
Sigma Far	SIGF	25.1	25.9	0.41
Ratio Near-Long Capture	RNL2	1.78	2.83	0.02
Ratio Near-Long Burst	RNLB	2.57	4.18	0.01
Ratio Near-Far Capture	RNF2	0.98	1.28	0.01
Ratio Near-Far Burst	RNFB	1.30	1.63	0.01
Spectral Hydrogen Index	HIS2	16.68	17.41	0.29
Carbon-Oxygen Ratio	CORS	1.51	1.54	0.05
Ratio Burst-Capture Near	RNBC	2.23	2.53	0.02
Ratio Burst-Capture Far	RFBC	2.09	2.20	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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