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OILFIELD SERVICES

Pulsed Neutron Gamma Ray Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal PA 334-13
Field Parachute
County Garfield
State Colorado

Company	TEP Rocky Mountain LLC
Well	Federal PA 334-13
Field	Parachute
County	Garfield
State	Colorado
Location:	API # : 05-045-24203
Other Services	RBL
SEC 13 TWP 6S RGE 95W	

Permanent Datum	Ground Level	Elevation 6571.1'
Log Measured From	Kelly Bushing	24 FT
Drilling Measured From	Kelly Bushing	

Elevation
K.B. 6595.1'
D.F. 6594.1'
G.L. 6571.1'

Date	23-JUL-2020
Run Number	Two
Depth Driller	9837 FT
Depth Logger	9772 FT
Bottom Logged Interval	9772 FT
Top Log Interval	5748 FT
Open Hole Size	8.750"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	---
Estimated Cement Top	---
Time Well Ready	ROA
Time Logger on Bottom	11:30
Equipment Number	HD-0359
Location	Grand Junction, CO
Recorded By	Z Fisher
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	1126 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9795 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 21-JUL-2020
Log ran from 9772 FT to 5748 FT
Pulsed Neutron Data logged with the Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!

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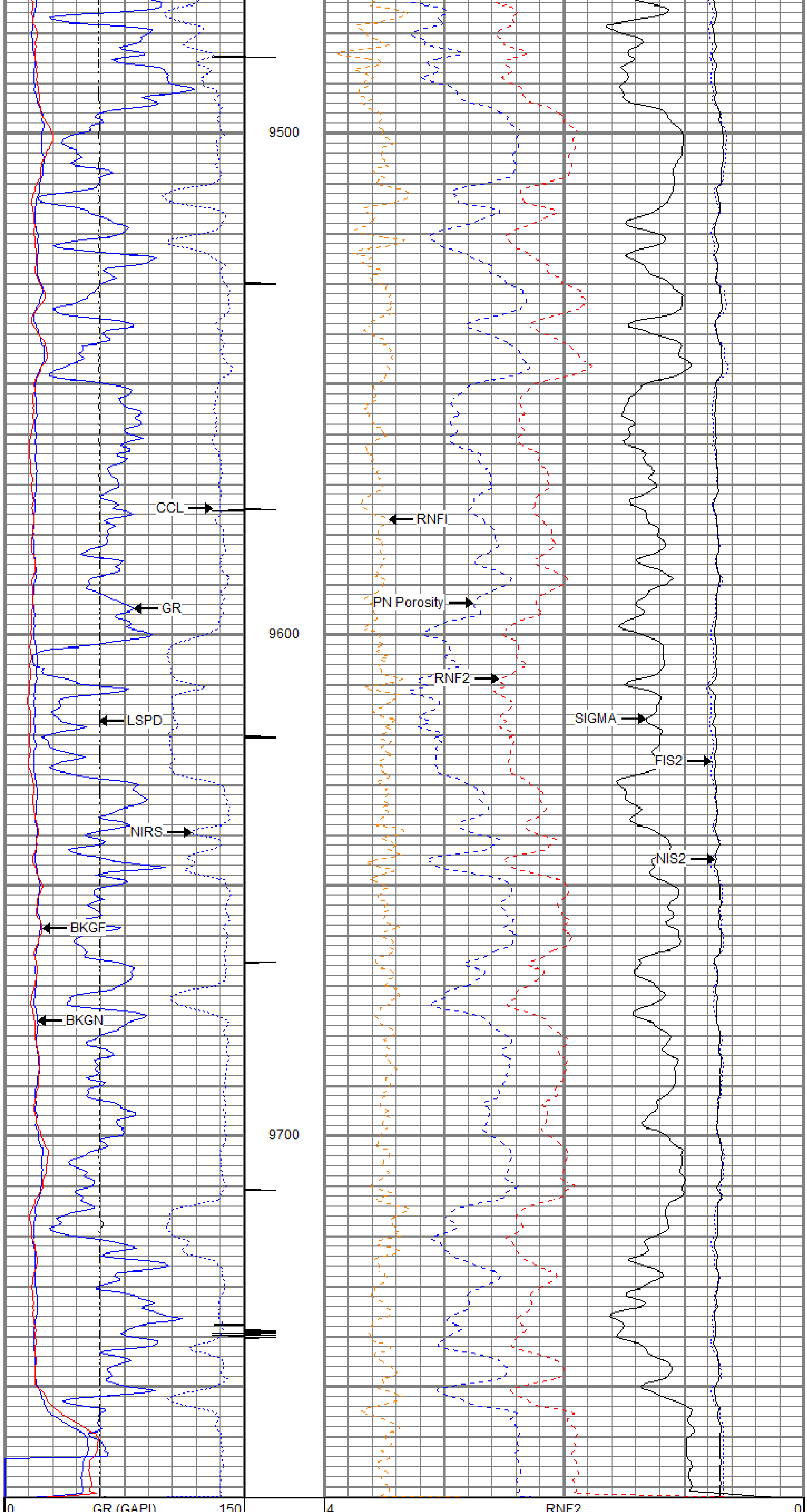
Main Pass

Database File	e:\data\tep\federal pa 334-13\pn\tep_federal pa 334-13_pn_07-23-20.db
Dataset Pathname	runSHIFTED/merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Mon Jul 27 17:16:57 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 (cps 100000



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	0	FIS2 (cps) 45000
0	BKGN (cps)	4000			0	NIS2 (cps100000
0	BKGF (cps)	2000				

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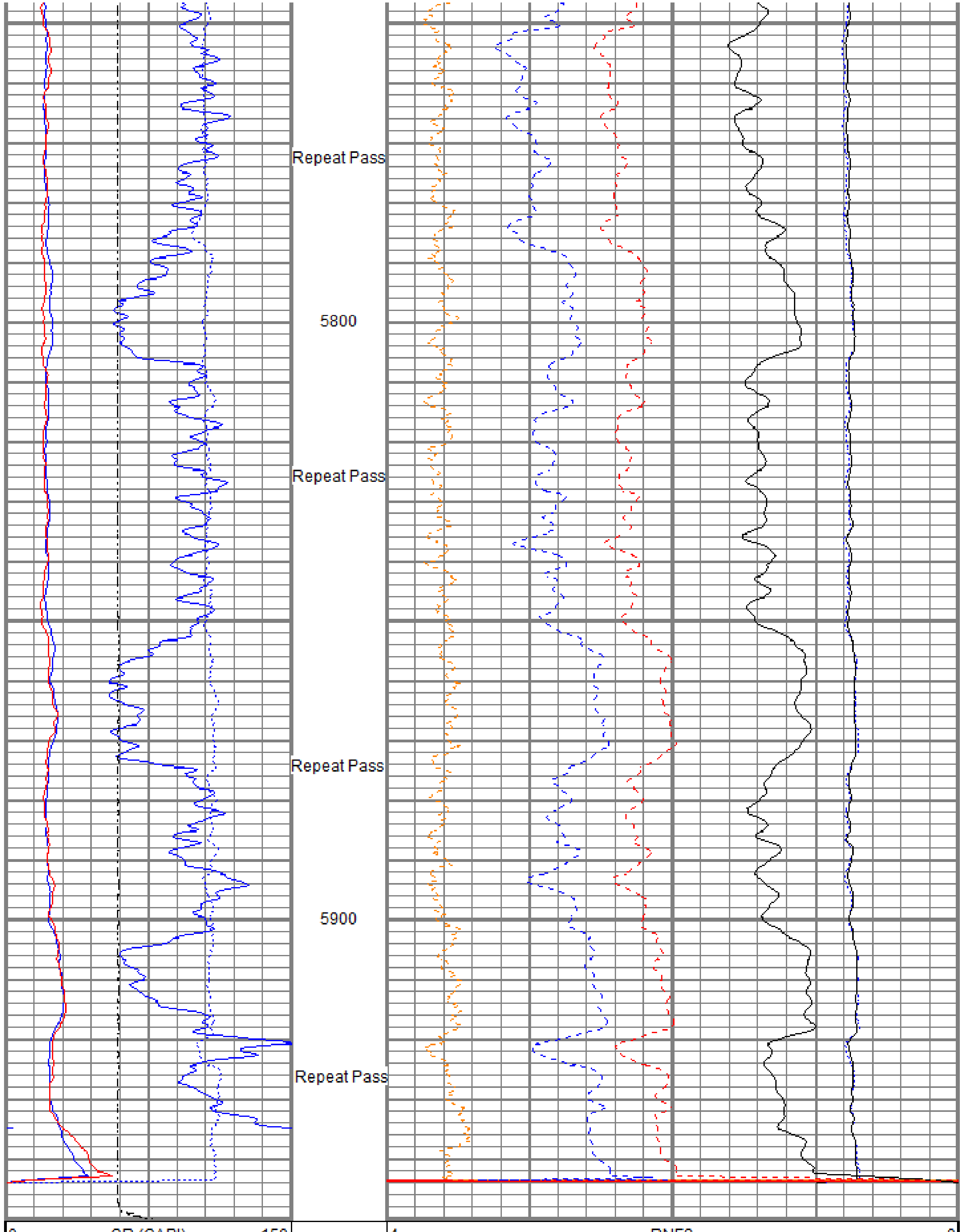
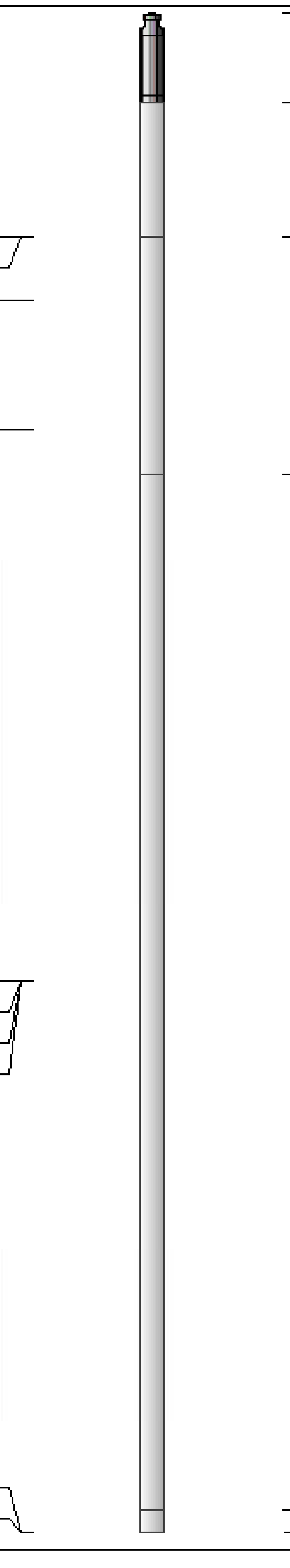
Repeat Pass

Database File	e:\data\tep\federal pa 334-13\pn\tep_federal pa 334-13_pn_07-23-20.db
Dataset Pathname	repeat.2
Presentation Format	ros_pdn_hunter
Dataset Creation	Thu Jul 23 16:59:46 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)	0	FIS2 (cps) 45000
0	BKGF (cps)	2000	1	(Porosity Decimal Fraction) 0	0	NIS2 (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)	0	FIS2 (cps) 45000
0	BKGF (cps)	2000	1	(Porosity Decimal Fraction) 0	0	NIS2 (cps100000



Sensor	Offset (ft)
TCUTEMP	14.69
TCUVOLT	14.69
GCL_CCL	13.97
GCL_GR	12.50
Long	6.25
Far	6.25
Near	6.25
Anci	6.25
LOCTIM	0.00
UTCTIM	0.00

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-001 (000279) HWS Telemetry Control Unit	1.52	1.69	7.80
HWS_GCL-001 (000262) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
HWS_RAS-RAS002 (003040) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
HWS_TBN-001 (001724) HWS Terminator Bull Nose (1.6875")	0.25	1.69	0.99

Dataset: tep_federal pa 334-13_pn_07-23-20.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 e:\data\tep\federal pa 334-13\pn\tep_federal pa 334-13_pn_07-23-20.db
Dataset Pathname main.2
Dataset Creation 00:00:00

RAS Calibration Report

Calibration Date: Thu Jul 11 14:55 2020 Meas #: 003041

Water Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	23.1	24.1	0.23
Sigma Far	SIGF	22.8	23.5	0.27
Ratio Near-Long Capture	RNL2	5.79	6.45	0.04
Ratio Near-Long Burst	RNLB	6.49	6.87	0.04
Ratio Near-Far Capture	RNF2	1.85	2.01	0.01
Ratio Near-Far Burst	RNFB	2.03	2.16	0.01
Spectral Hydrogen Index	HIS2	12.84	12.61	0.16
Carbon-Oxygen Ratio	CORS	1.34	1.30	0.05
Ratio Burst-Capture Near	RNBC	1.46	1.73	0.01
Ratio Burst-Capture Far	RFBC	1.50	1.67	0.01

Hydrocarbon Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	25.7	26.8	0.25
Sigma Far	SIGF	25.1	25.5	0.45
Ratio Near-Long Capture	RNL2	1.78	2.98	0.02
Ratio Near-Long Burst	RNLB	2.57	4.38	0.02
Ratio Near-Far Capture	RNF2	0.98	1.30	0.01
Ratio Near-Far Burst	RNFB	1.30	1.64	0.01
Spectral Hydrogen Index	HIS2	16.68	17.41	0.28
Carbon-Oxygen Ratio	CORS	1.51	1.54	0.04
Ratio Burst-Capture Near	RNBC	2.23	2.46	0.02
Ratio Burst-Capture Far	RFBC	2.09	2.18	0.02

Gamma Ray Calibration Report

Serial Number:	000262	
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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