RELIANCE OILFIELD SERVICES

Pulsed Neutron Gamma Ray Log

Company Ursa Operating Company LLC
Well Boies Ranch C-240 FED 31B-25-2-98
Field Sulphur Creek
County Rio Blanco
State Colorado

Company	Ursa Operating Company LLC
Well	Boies Ranch C-240 FED 31B-25-2-98
Field	Sulphur Creek
County	Rio Blanco State Colorado

Location: API # : 05-103-12335

SEC 24 TWP 2S RGE 98W

Other Services
RBL

Permanent Datum	Ground Level	Elevation	6304.5'
Log Measured From	Kelly Bushing	21 FT	
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 6325.5'
D.F. 6324.5'
G.L. 6304.5'

Date	17-JAN-2019		
Run Number	Three		
Depth Driller	10640 FT		
Depth Logger	10611 FT		
Bottom Logged Interval	10605 FT		
Top Log Interval	5246 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	20:20		
Equipment Number	HD-0359		
Location	Grand Junction, CO		
Recorded By	Z.Fisher		
Witnessed By	Oscar Molina		

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	---
Intermediate #1	4 1/2	11.6	P-110	Surface	10640 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 Reliance Bond Log dated 18-JAN-2019
Log ran from 10605 FT to 5246 FT
Pulsed Neutron Data logged with the Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!

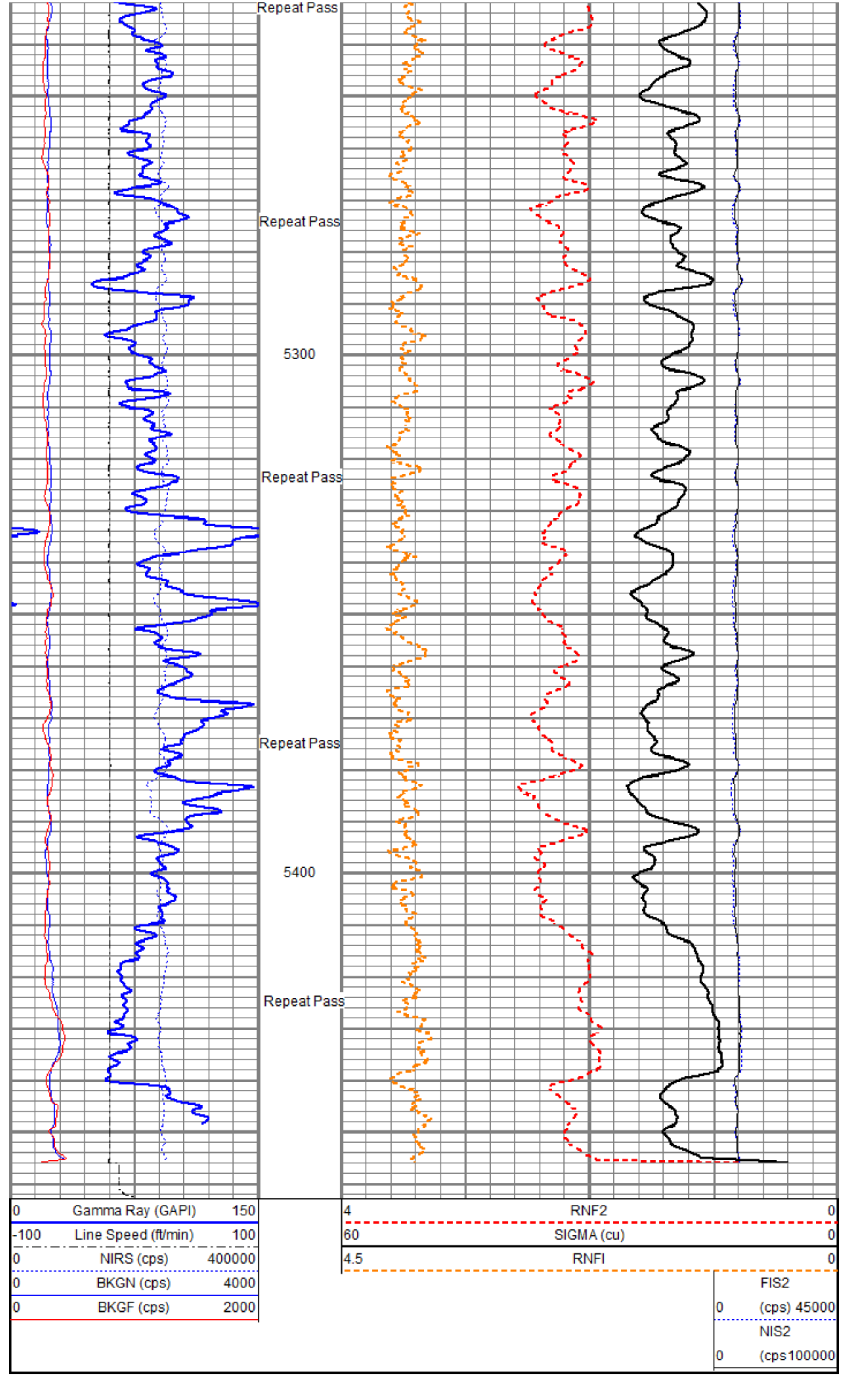
RELIANCE OILFIELD SERVICES

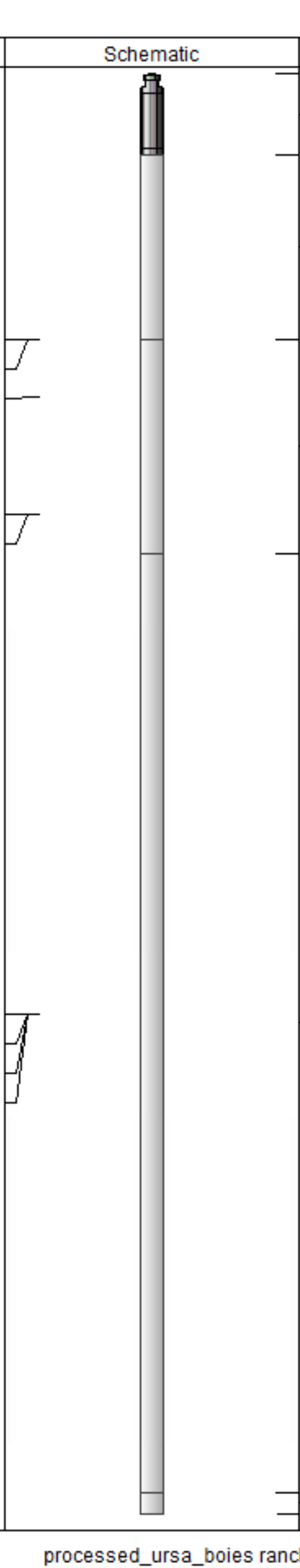
Main Pass

Database File	tep\ursa_boies ranch c-240 fed 31b-25-2-98_pn_01-17-19\processed_ursa_boies ranch c-240 fed 31b-25-
Dataset Pathname	run/merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Sun Jan 20 11:29:57 2019
Charted by	Depth in Feet scaled 1:240

Repeat Pass

Database File tep\ursa_boies ranch c-240 fed 31b-25-2-98_pn_01-17-19\processed_ursa_boies ranch c-240 fed 31b-25-
Dataset Pathname repeat.2
Presentation Format ros_pdn_hunter
Dataset Creation Fri Jan 18 01:16:15 2019
Charted by Depth in Feet scaled 1:240



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 (001704) HWS Telemetry Control Unit (TCU002)	2.30	1.69	10.87
TCUTEMP TCUVOLT GCL_CCL	14.69 14.69 13.97					
			HWS_GCL-001 (001681) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
GCL_GR GCL_GR	12.50 12.50					
Long Far Near Anci	6.25 6.25 6.25 6.25		HWS_RAS-RAS002 (003041) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
			HWS_TBN-001 (001725) HWS Terminator Bull Nose (1.6875")	0.25	1.69	0.99

Dataset: processed_ursa_boies ranch c-240 fed 31b-25-2-98_pn_01-17-19.db: field/well/run1/repeat.2
Total length: 18.02 ft
Total weight: 86.48 lb
O.D.: 1.69 in

Calibration Report

Database File c:\programdata\warrior\data\tep\ursa_boies ranch c-240 fed 31b-25-2-98_pn_01-17-19\processed_ursa_boi
Dataset Pathname repeat.2
Dataset Creation Fri Jan 18 01:16:15 2019

RAS Calibration Report

Calibration Date: Thu Jan 17 19:18:57 2019

Meas #: 003041

Water Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	23.1	24.2	0.35
Sigma Far	SIGF	22.8	23.4	0.46
Ratio Near-Long Capture	RNL2	5.79	6.61	0.05
Ratio Near-Long Burst	RNLB	6.49	6.90	0.05
Ratio Near-Far Capture	RNF2	1.85	2.02	0.02
Ratio Near-Far Burst	RNFB	2.03	2.19	0.01
Spectral Hydrogen Index	HIS2	12.84	13.24	0.21
Carbon-Oxygen Ratio	CORS	1.34	1.36	0.05
Ratio Burst-Capture Near	RNBC	1.46	1.74	0.02
Ratio Burst-Capture Far	RFBC	1.50	1.65	0.01

Hydrocarbon Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	25.7	26.5	0.49
Sigma Far	SIGF	25.1	25.9	0.54
Ratio Near-Long Capture	RNL2	1.78	3.07	0.03
Ratio Near-Long Burst	RNLB	2.57	4.52	0.02
Ratio Near-Far Capture	RNF2	0.98	1.31	0.01
Ratio Near-Far Burst	RNFB	1.30	1.67	0.01
Spectral Hydrogen Index	HIS2	16.68	18.05	0.35
Carbon-Oxygen Ratio	CORS	1.51	1.56	0.04
Ratio Burst-Capture Near	RNBC	2.23	2.47	0.02
Ratio Burst-Capture Far	RFBC	2.09	2.16	0.01

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/

RELIANCE OILFIELD SERVICES

Company	Ursa Operating Company LLC
Well	Boies Ranch C-240 FED 31B-25-2-98
Field	Sulphur Creek
County	Rio Blanco
State	Colorado