PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company MURFIN DRILLING COMPANY, INC.
Well HAMIT UNIT #2-20
Field WILDCAT
County ROOKS State KANSAS
Location: API #: 15-163-24349-00-00
330' FSL & 1330' FWL
SEC 20 TWP 6S RGE 19W

Other Services: CNL/CDL, DIL/BHCS

Elevation: K.B. 2130', D.F. N/A, G.L. 2125'

Permanent Datum: GROUND LEVEL Elevation 2125'
Log Measured From: KELLY BUSHING
Drilling Measured From: KELLY BUSHING

Company	MURFIN DRILLING COMPANY, INC.			
Well	HAMIT UNIT #2-20			
Field	WILDCAT			
County	ROOKS			
State	KANSAS			
Date	11/14/2017			
Run Number	TWO			
Depth Driller	3686'			
Depth Logger	3687'			
Bottom Logged Interval	3686'			
Top Log Interval	3000'			
Casing Driller	8.625" @ 218'			
Casing Logger	215'			
Bit Size	7.875"			
Type Fluid in Hole	CHEMICAL			
Salinity,ppm CL	1000			
Density / Viscosity	9.0	51		
pH / Fluid Loss	10.5	6.0		
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	0.90 @ 55			
Rmf @ Meas. Temp	0.68 @ 55			
Rmc @ Meas. Temp	1.22 @ 55			
Source of Rmf / Rmc	CHARTS			
Rm @ BHT	0.44 @ 113			
Operating Rig Time	4 HOURS			
Max Rec. Temp. F	113			
Equipment Number	91			
Location	HAYS			
Recorded By	D. SCHMIDT			
Witnessed By	ROBERT HENDRIX			

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

STOCKTON,
NORTH TO E RD, 9 1/2 WEST,
NORTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneeres.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: D. SCHMIDT	Primary Witness: ROBERT HENDRIX
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

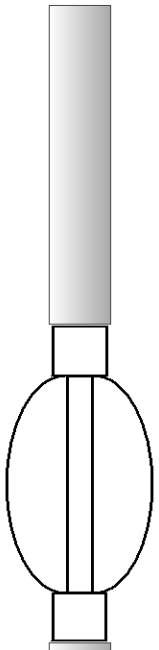
Database C:\ProgramData\Warrior\Data\murfin_hamit_2-20.db
Dataset field/well/STACK/pass5.1/_vars_

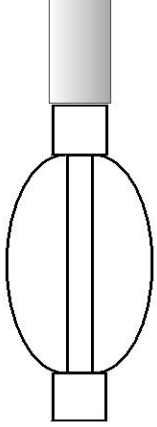
Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	327	0

SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	55	0	5.5	0	3687	113	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			ML-Armadillo (ARM001) Pengo Mandrel & Armadillo ML Electronics (2014)	5.50	3.50	100.00
MCAL	28.00					
MI	28.00					
MN	28.00					
			CENT-PENGO (4-PENGO)	5.50	3.00	70.00
WVF4	13.50		SLT-PENGO (0001)	16.00	3.50	300.00
WVF1	13.50					
WVF3	11.50					
WVF2	11.50					





CENT-PENGO (3-PENGO)	5.50	3.00	70.00

Dataset:	murfin_hamit_2-20.db: field/well/SONMEL/pass2
Total length:	32.50 ft
Total weight:	540.00 lb
O.D.:	3.50 in

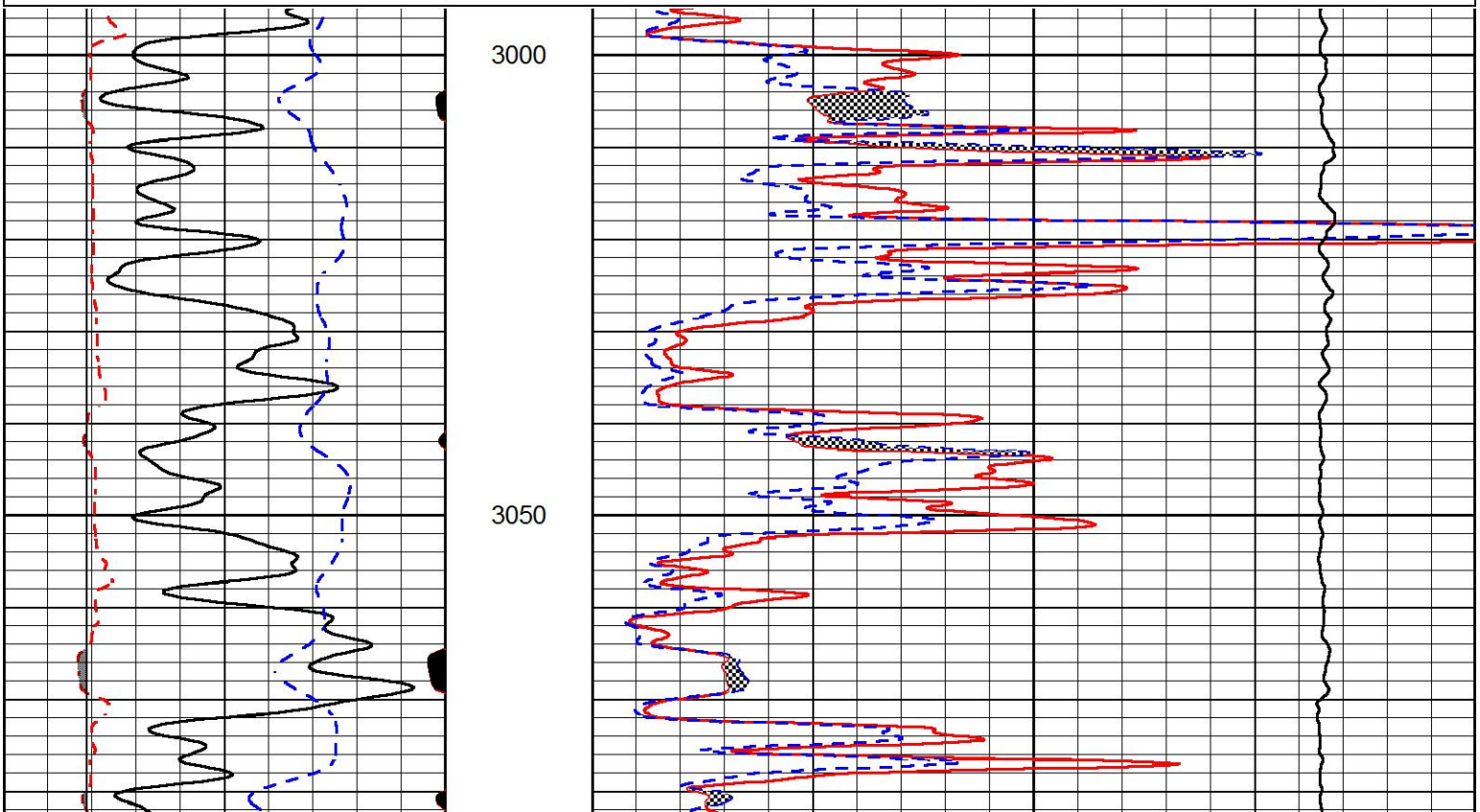
PIONEER
Pioneer Energy Services

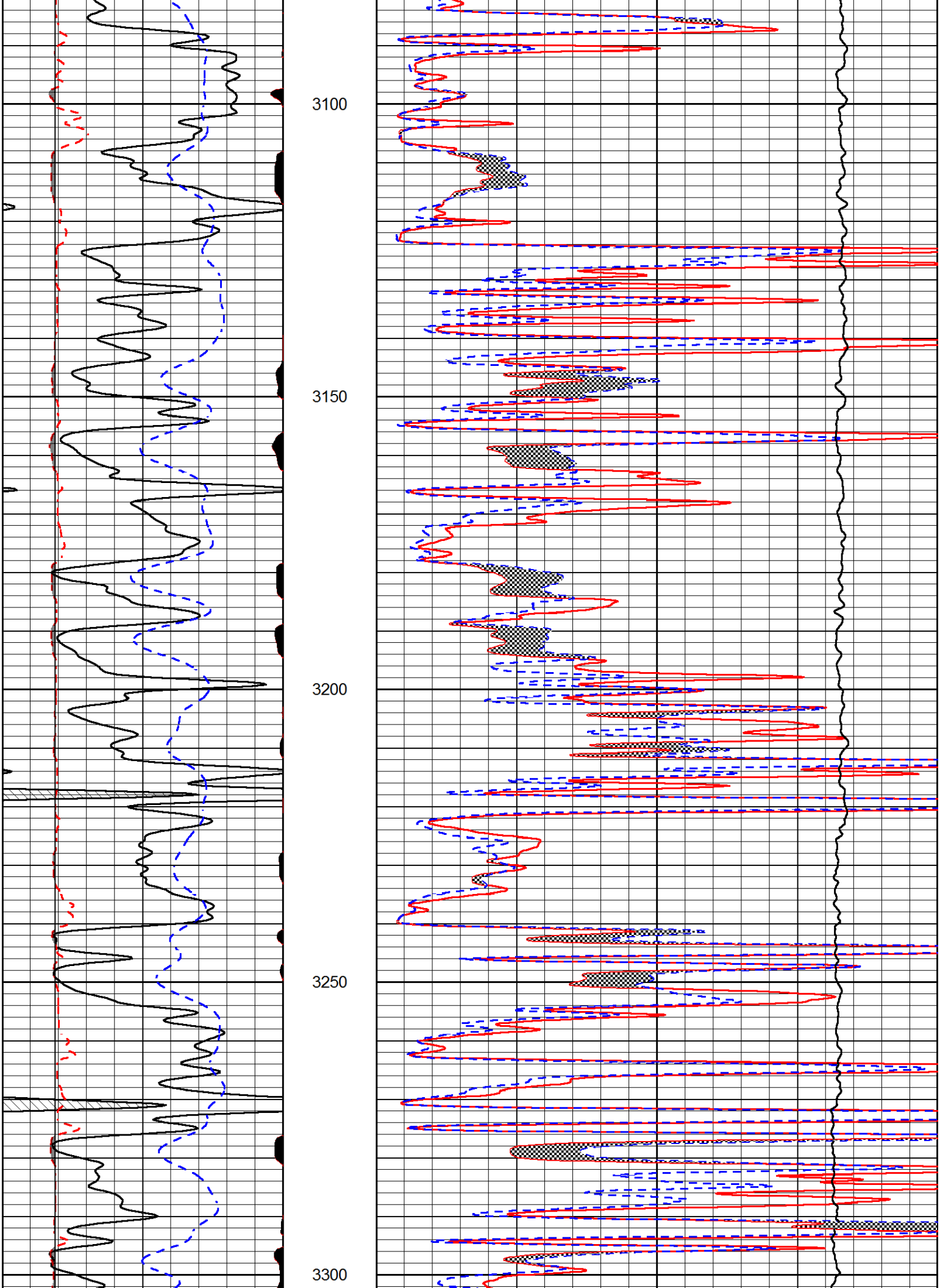
MAIN PASS

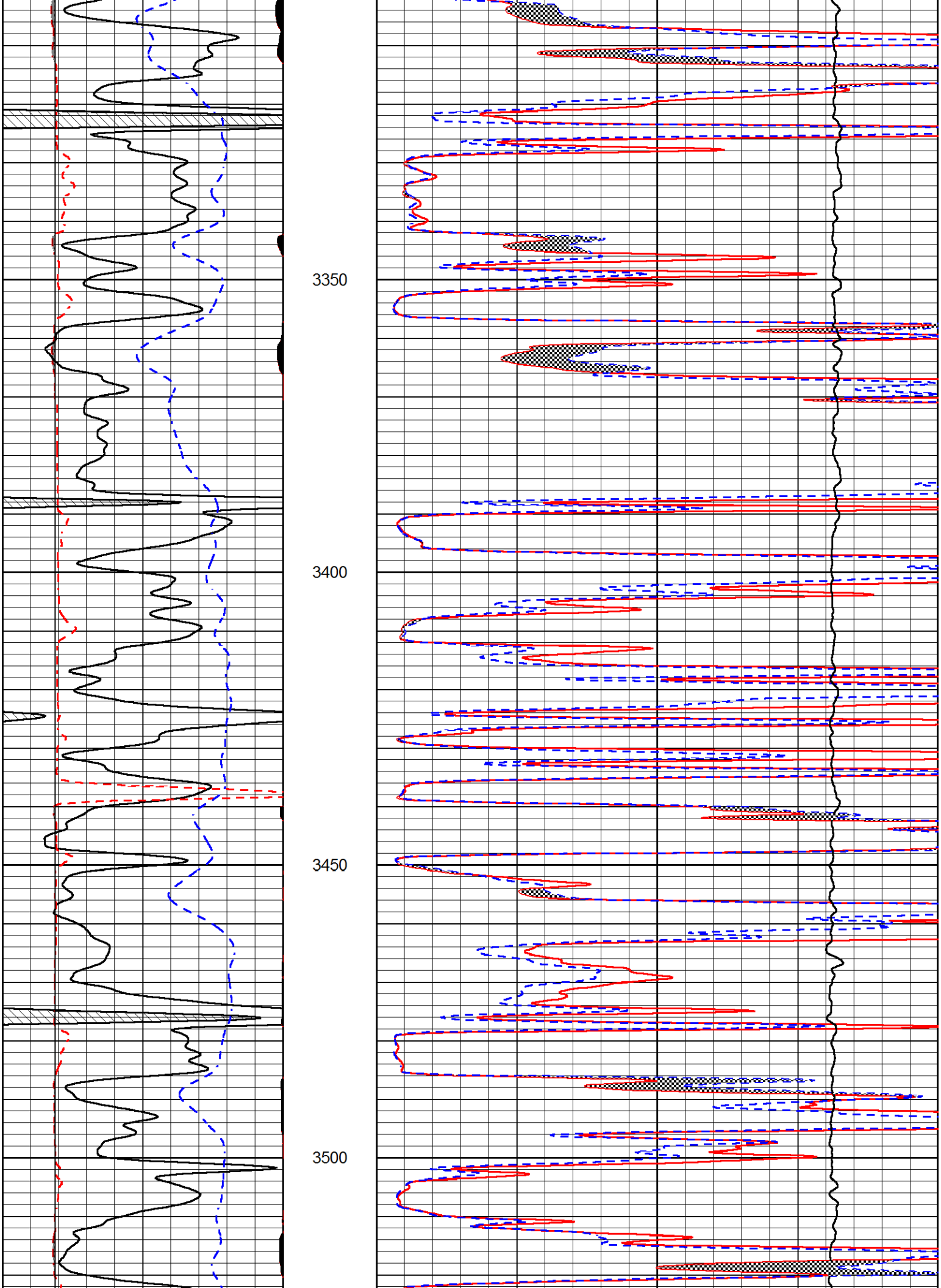
Database File	murfin_hamit_2-20.db
Dataset Pathname	STACK/pass9.1
Presentation Format	micro
Dataset Creation	Tue Nov 14 07:27:01 2017
Charted by	Depth in Feet scaled 1:240

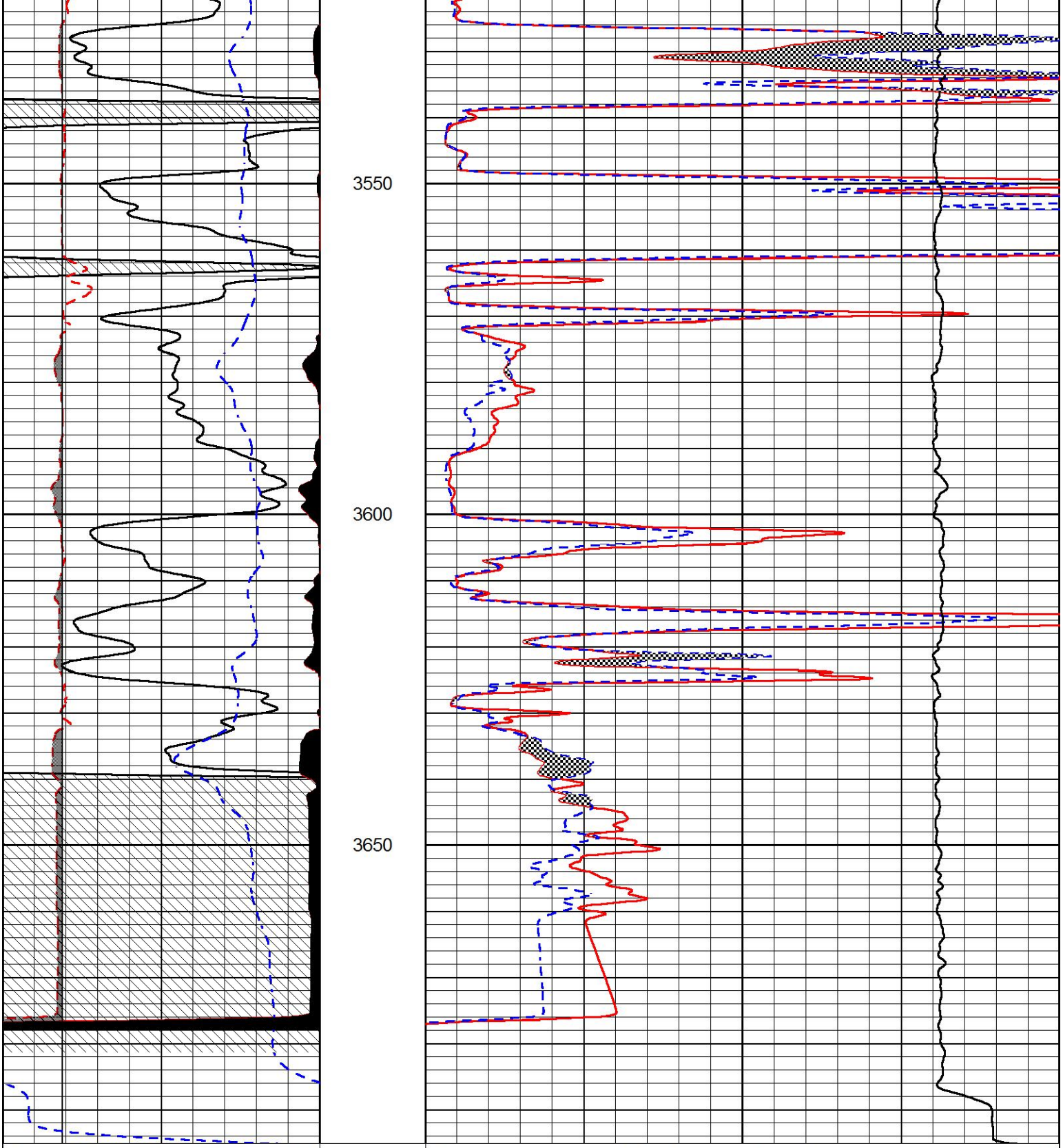
0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

0	Micro Inverese 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0




3100
3150
3200
3250
3300


3350
3400
3450
3500



0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

0	Micro Inverese 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

PIONEER

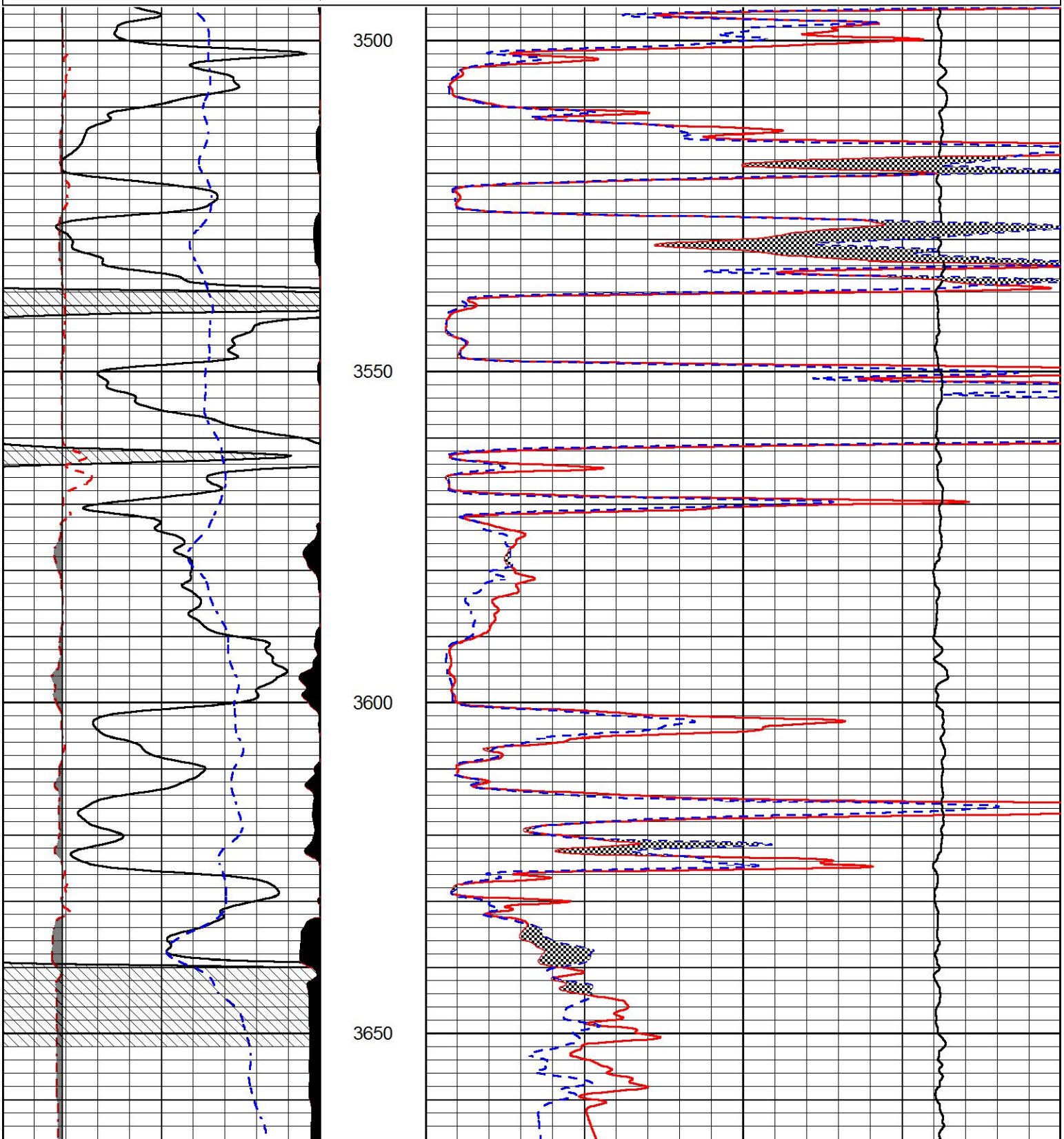
REPEAT SECTION

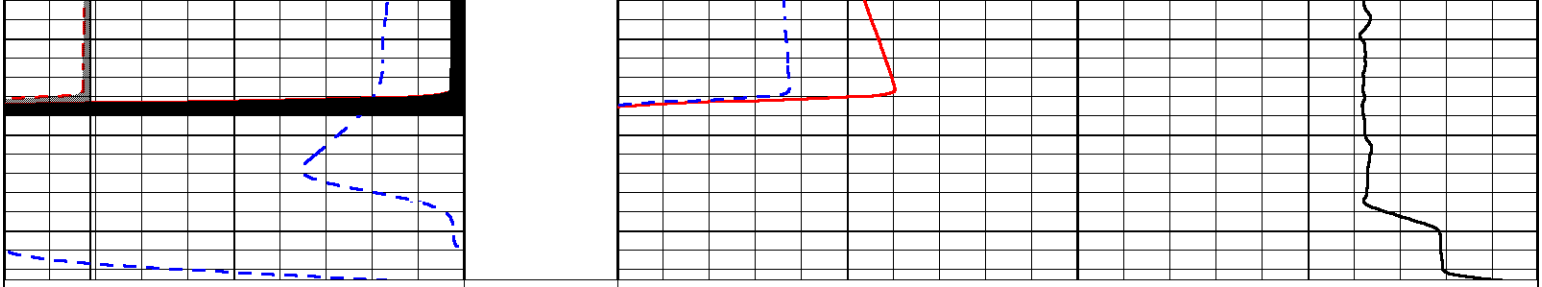
Pioneer Energy Services

Database File	murfin_hamit_2-20.db
Dataset Pathname	STACK/pass3.1
Presentation Format	micro
Dataset Creation	Tue Nov 14 07:34:22 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

0	Micro Inverese 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0





0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

0	Micro Inverese 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

Calibration Report

Database File	murfin_hamit_2-20.db
Dataset Pathname	STACK/pass9.1
Dataset Creation	Tue Nov 14 07:27:01 2017

Dual Induction Calibration Report

Serial-Model:	PSI 91-M&W
Calibration Performed:	Thu Nov 09 00:57:24 2017

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.430	-31.500
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-31.000

Microlog Calibration Report

Serial-Model:	PSI-01-PSIML
Performed:	Wed Nov 08 02:36:52 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	31000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.3500

Compensated Density Calibration Report

Serial-Model:	90-1031-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Wed Nov 08 23:24:34 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4903.44	6153.79	cps
Aluminum	2.640	g/cc	934.50	4021.31	cps

Spine Angle = 75.61

Density/Spine Ratio = 0.517

	Size		Reading
Small Ring	8.00	in	1.84
Large Ring	22.00	in	1.46

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	WED SEP 6 10:30:30 2017

Detector	Readings		Target		Normalization
Short Space	6240.00	cps	1000.00	cps	1.6025
Long Space	460.00	cps	1000.00	cps	1.9500

Gamma Ray Calibration Report

Serial Number:	89	
Tool Model:	M&W	
Calibration Performed:	Wed Sep 06 19:51:14 2017	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

PIONEER
Pioneer Energy Services

Company	MURFIN DRILLING COMPANY, INC.
Well	HAMIT UNIT #2-20
Field	WILDCAT
County	ROOKS
State	KANSAS