



**DUAL COMP POROSITY
MICRO & DUAL IND LOG**

Company **RITCHEE EXPLORATION, INC.**
 Well **ZACHMAN AP NO.4**
 Field **STAR SOUTHEAST**
 County **ELLIS**
 State **KANSAS**

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Location: **API #: 15-051-26900-00-00**
800' FSL & 1735' FEL
 SEC 5 TWP 12S RGE 19W
 Permanent Datum **GROUND LEVEL Elevation 2155'**
 Log Measured From **KELLY BUSHING**
 Drilling Measured From **KELLY BUSHING**
 Other Services **NONE**
 Elevation
 K.B. 2163'
 D.F. N/A
 G.L. 2155'

Date	12/14/2017						
Run Number	ONE						
Type Log	CNL/CDL/ML/DIL						
Depth Driller	3800'						
Depth Logger	3796'						
Bottom Logged Interval	3767'						
Top Logged Interval	3000'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	3000						
Density	9.2						
Level	FULL						
Max. Rec. Temp. F	114 DEG/F						
Operating Rig Time	2 HOURS						
Equipment -- Location	108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	MAX LOVELLY						
Borehole Record			Casing Record				
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	220'	8.625"	23#	0	220'
TWO	7.875"	220'	TD				

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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

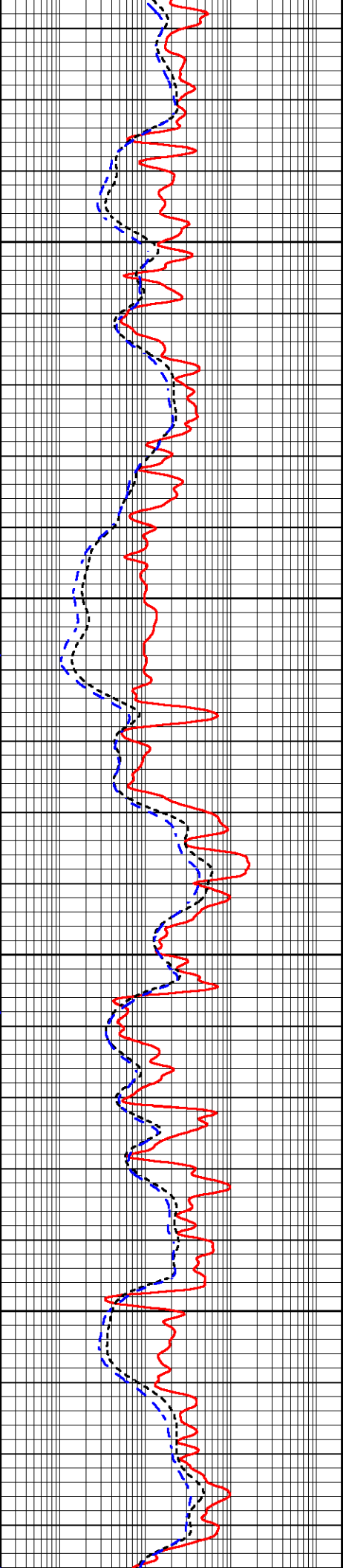
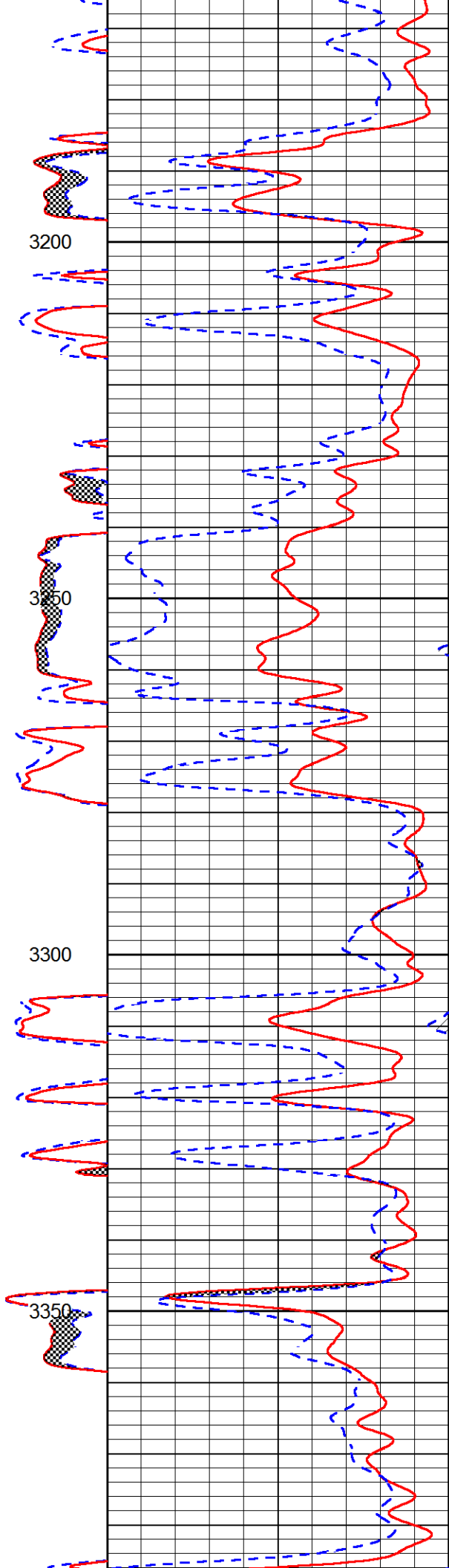
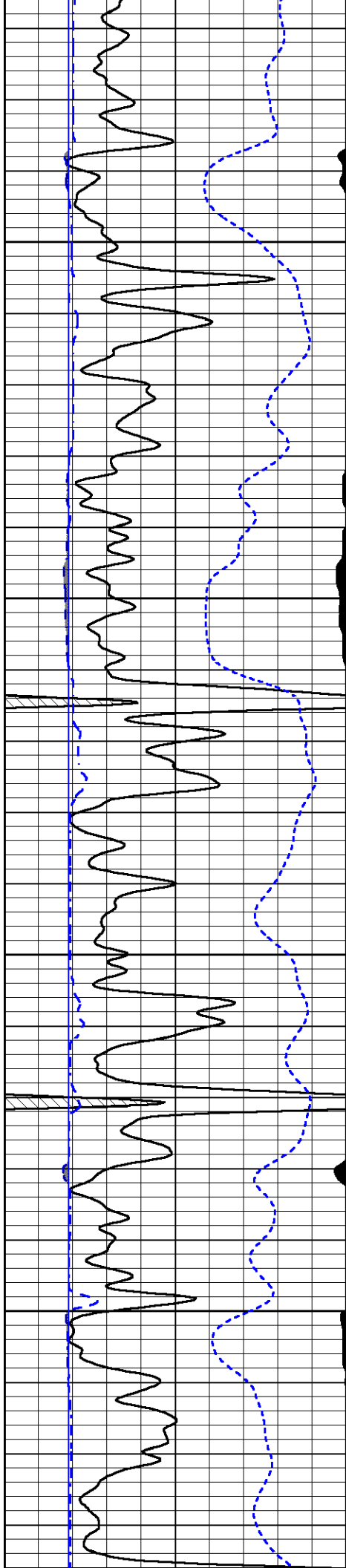
N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

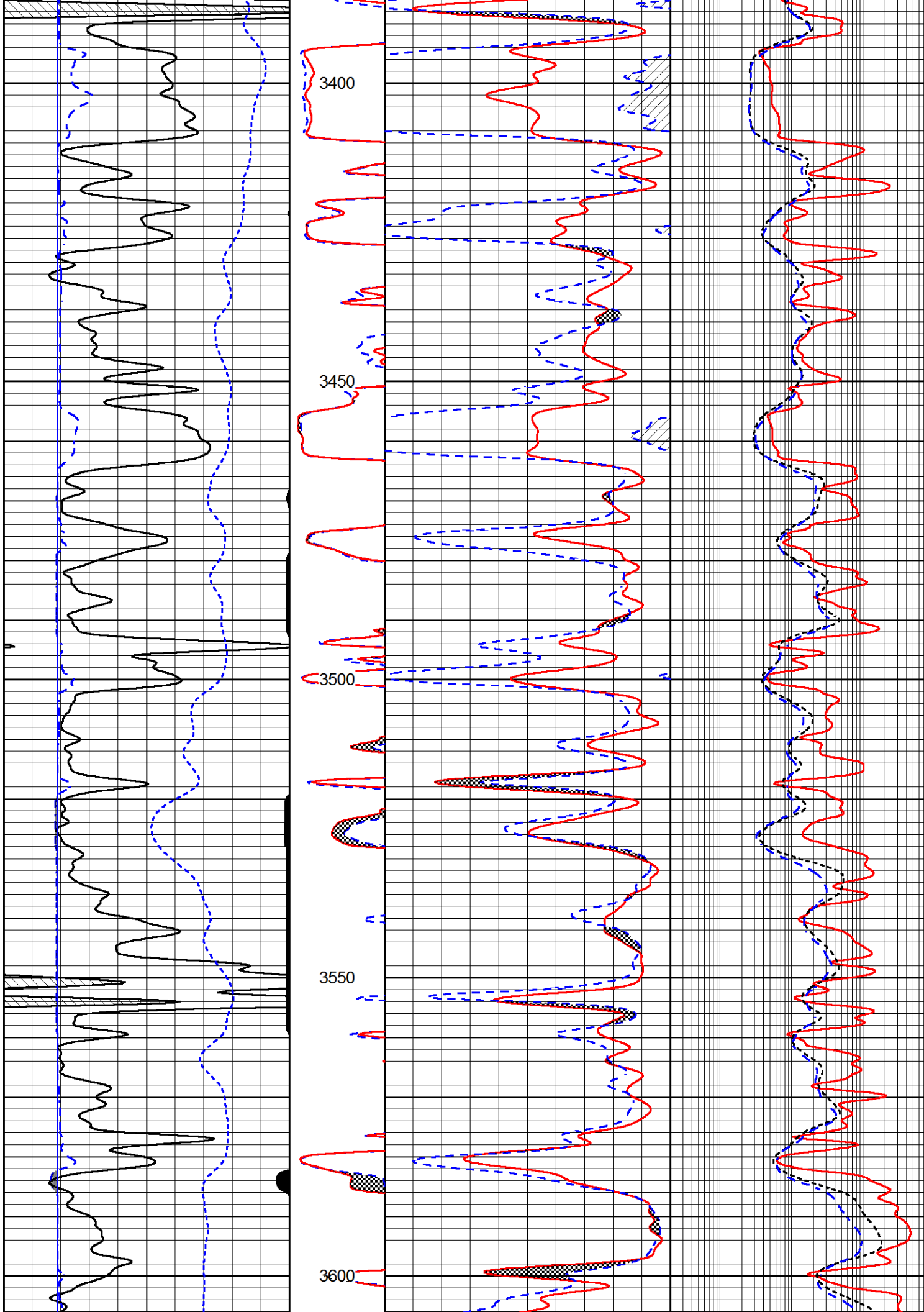
**HAYS KANSAS
 NORTH TO BUCKEYE ROAD, 7 WEST TO 180 RD, 2 NORTH
 1/3 WEST, NORTH INTO**

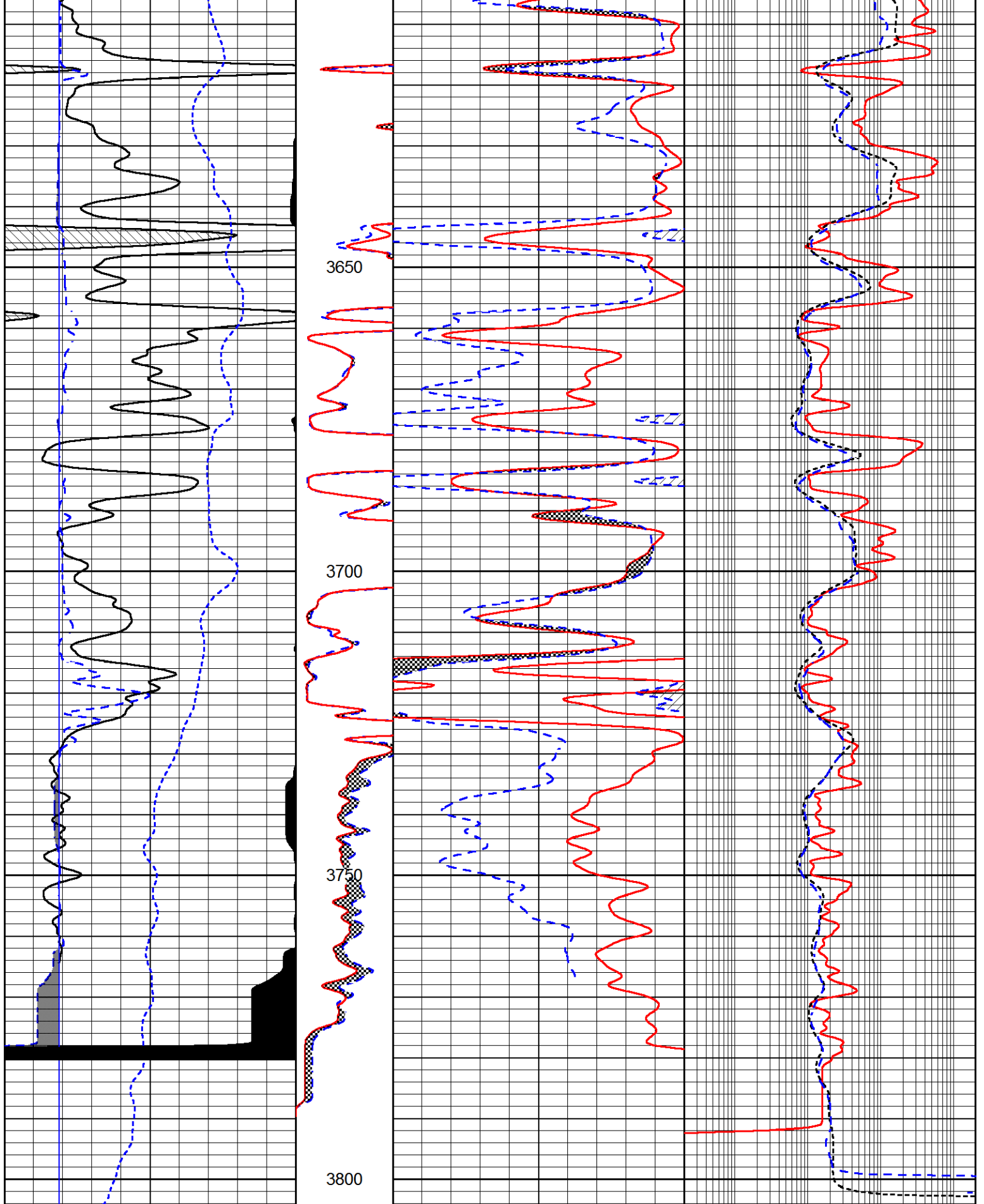
Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: J. HENRICKSON	Primary Witness: MAX LOVELLY
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:







0	GAMMA RAY (GAPI)	150	MN	30	DENSITY POROSITY (pu)	0	SHALLOW GUARD	
150	GR (GAPI)	300	(Ohm-m)	30	NEUTRON POROSITY (pu)	0	(Ohm-m)	2000
6	CALIPER (in)	16	0	20			MEDIUM INDUCTION	
2.875	DCAL (in)	7.875	MI				(Ohm-m)	2000
							DEEP INDUCTION	

-200	SP (mV)	0	(Ohm-m)	0.2	DEEP INDUCTION	(Ohm-m)	2000
		0	20				