



PIONEER

Pioneer Energy Services

MICRORESISTIVITY LOG

Company CASINO PETROLEUM, LLC		Company CASINO PETROLEUM, LLC
Well	HERTER NO. 4	Well HERTER NO. 4
Field	CHASE-SILICA	Field CHASE-SILICA
County	BARTON	County BARTON
State	KANSAS	State KANSAS
Location: API #: 15-009-26224-00-00		Other Services
330' FSL & 1320' FEL		CNL/CDL
SEC 8 TWP 20S RGE 11W		DIL/BHCS
Permanent Datum	GROUND LEVEL	Elevation 1772'
Log Measured From	KELLY BUSHING	K.B. 1782'
Drilling Measured From	KELLY BUSHING	D.F. N/A
		G.L. 1772'
Date	7/23/2018	
Run Number	TWO	
Depth Driller	3400'	
Depth Logger	3393'	
Bottom Logged Interval	3392'	
Top Log Interval	2700'	
Casing Driller	8.625" @ 275'	
Casing Logger	275'	
Bit Size	7.875"	
Type Fluid in Hole	CHEMICAL	
Salinity, ppm CL	12800	
Density / Viscosity	9.3 72	
pH / Fluid Loss	8.0 14.6	
Source of Sample	FLOWLINE	
Rm @ Meas. Temp	.30 @ 84	
Rmt @ Meas. Temp	.23 @ 84	
Rmc @ Meas. Temp	.41 @ 84	
Source of Rmt / Rmc	CHARTS	
Rm @ BHT	.23 @ 110	
Operating Rig Time	3 HOURS	
Max Rec. Temp. F	110 DEGF	
Equipment Number	108	
Location	HAYS	
Recorded By	J. HENRICKSON	
Witnessed By	JIM MUSGROVE	

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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.

ELLINWOOD KANSAS
SOUTH TO 30 RD, 1 1/2 EAST, NORTH INTO

Log Measured From: KELLY BUSHING 10 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: J. HENRICKSON
Operator:
Operator:
Operator:

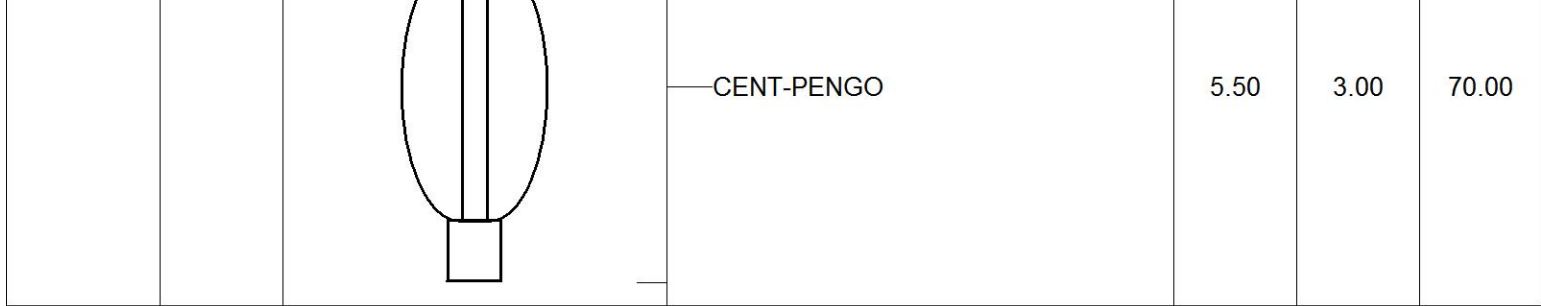
This Log Record Was Witnessed By

Primary Witness: JIM MUSGROVE
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 110	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m -8	mV 0	degF 97	Off	ft 3393

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
MCAL MI MN	22.50		ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00
	22.50					
	22.50					
WVF4 WVF1	13.50 13.50		SLT-PENGO (0001)	16.00	3.50	300.00
WVF3 WVF2	11.50 11.50					



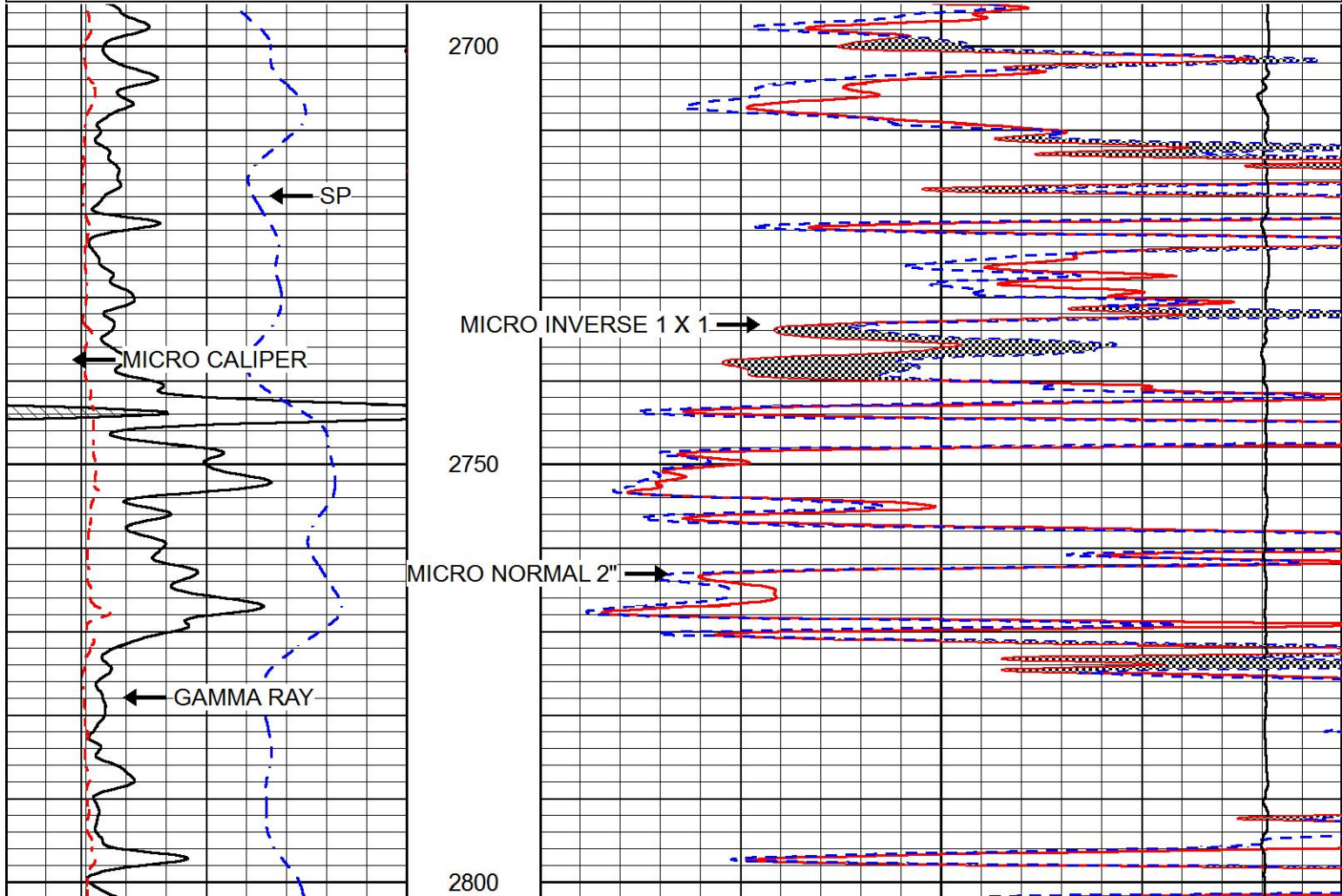
Dataset:	casino_herter_4.db: field/well/SONMEL/pass2
Total length:	26.50 ft
Total weight:	470.00 lb
O.D.:	3.50 in

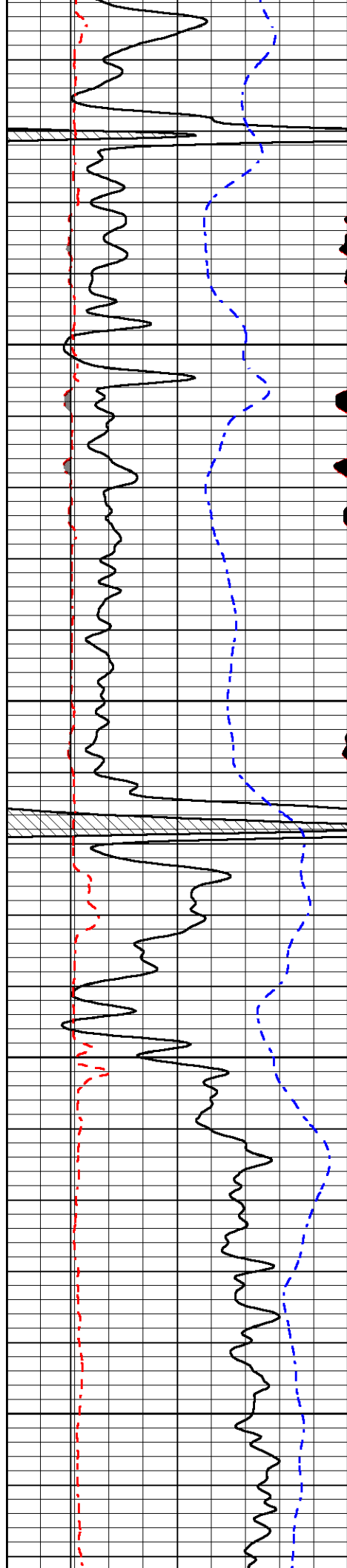


MAIN PASS

Database File	casino_herter_4.db
Dataset Pathname	stack/pass3.1
Presentation Format	micro
Dataset Creation	Mon Jul 23 17:44:39 2018
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0	MICRO INVERSE 1 X 1 (Ohm-m)	40
6	MICRO CALIPER (in)	16	0	MICRO NORMAL 2" (Ohm-m)	40
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
-200	SP (mV)	0			



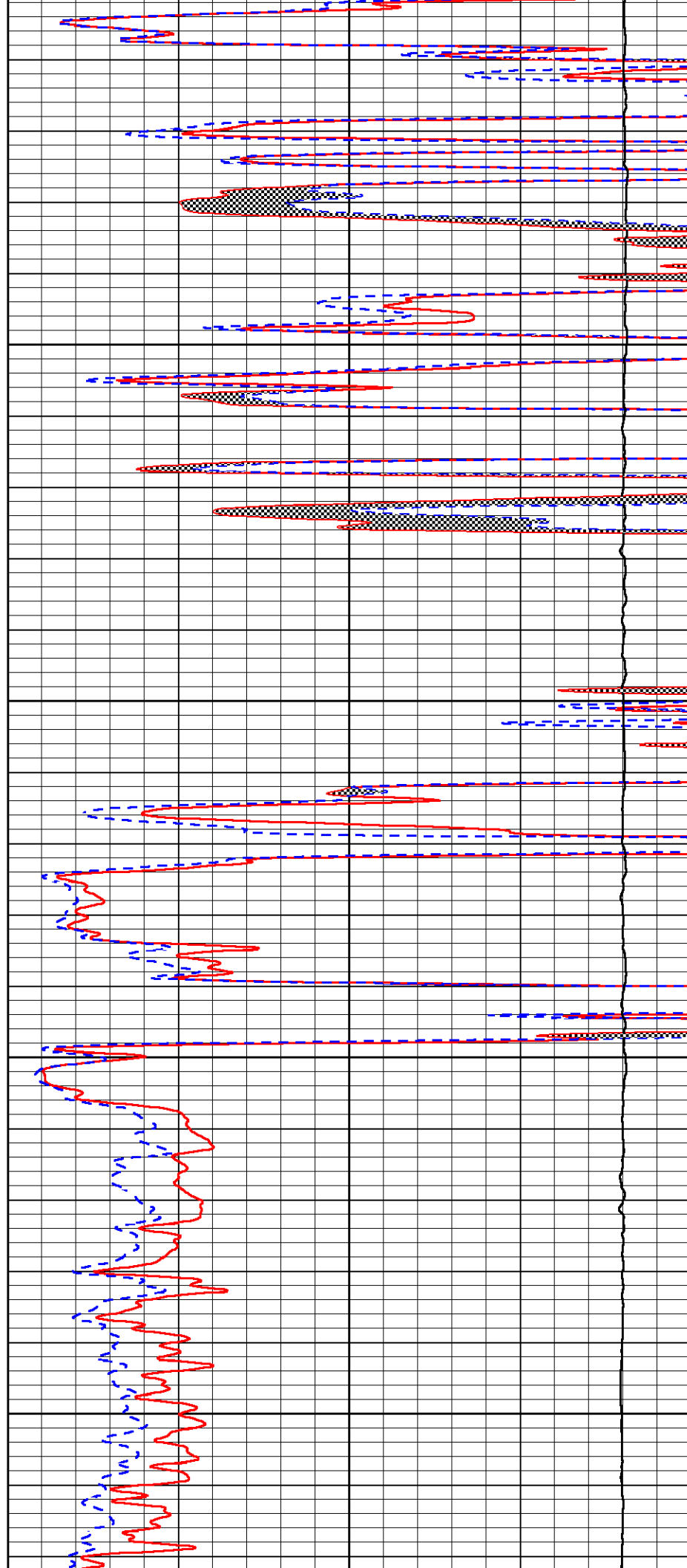


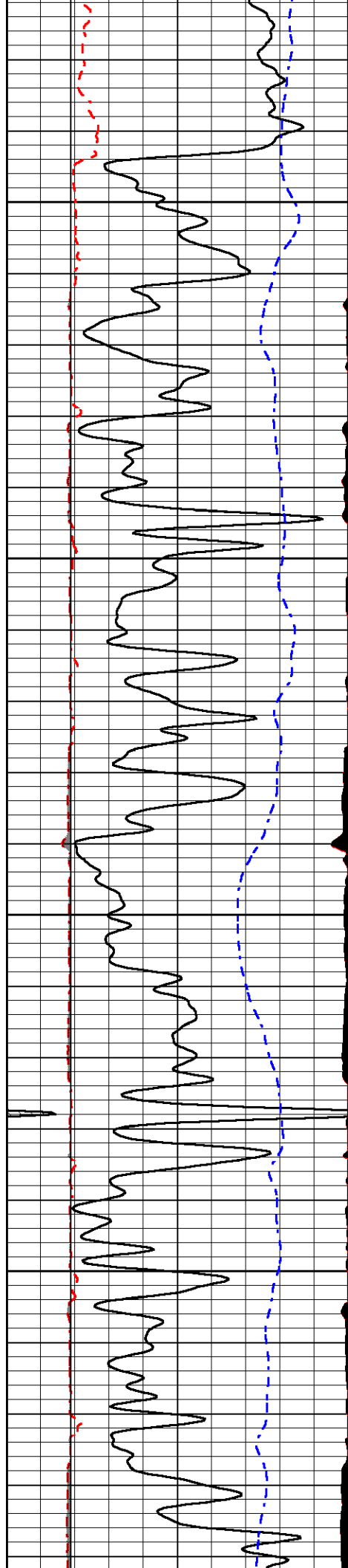
2850

2900

2950

3000



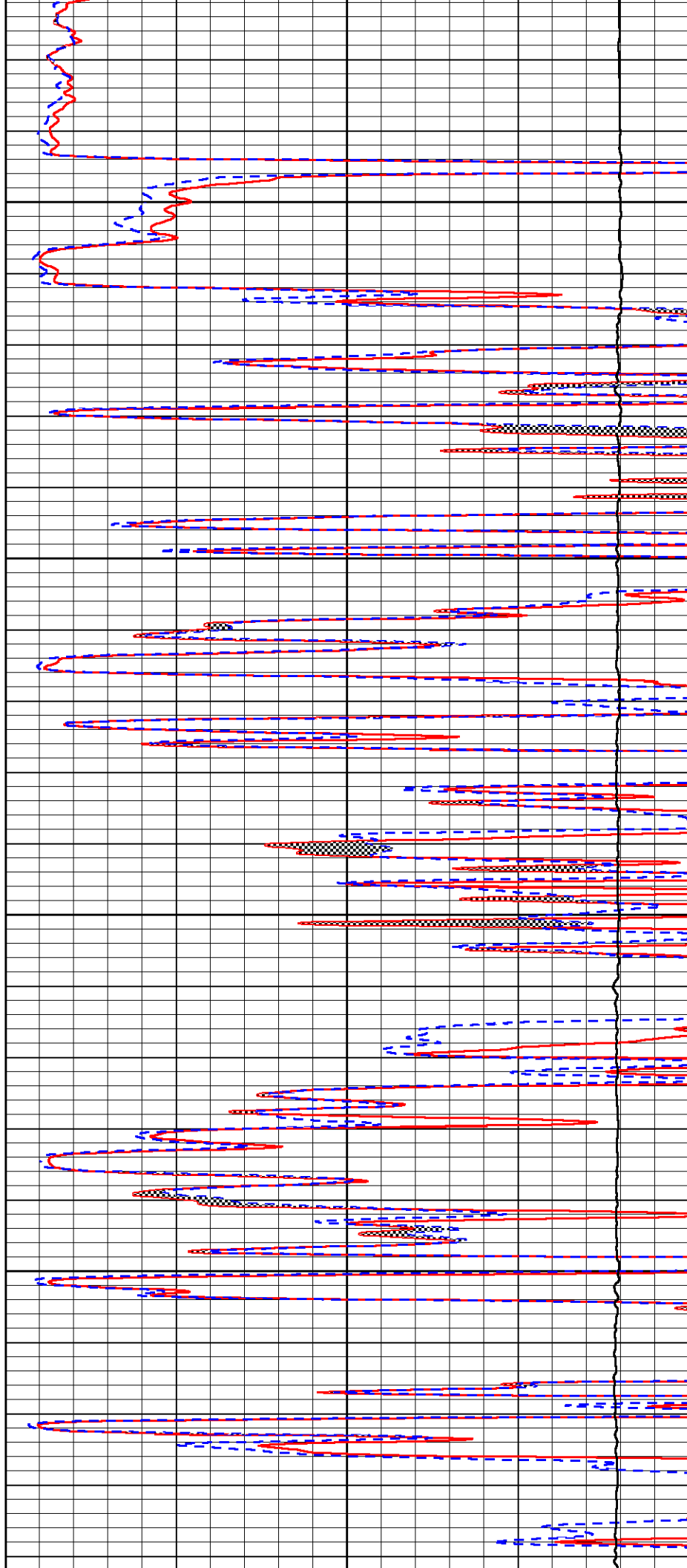


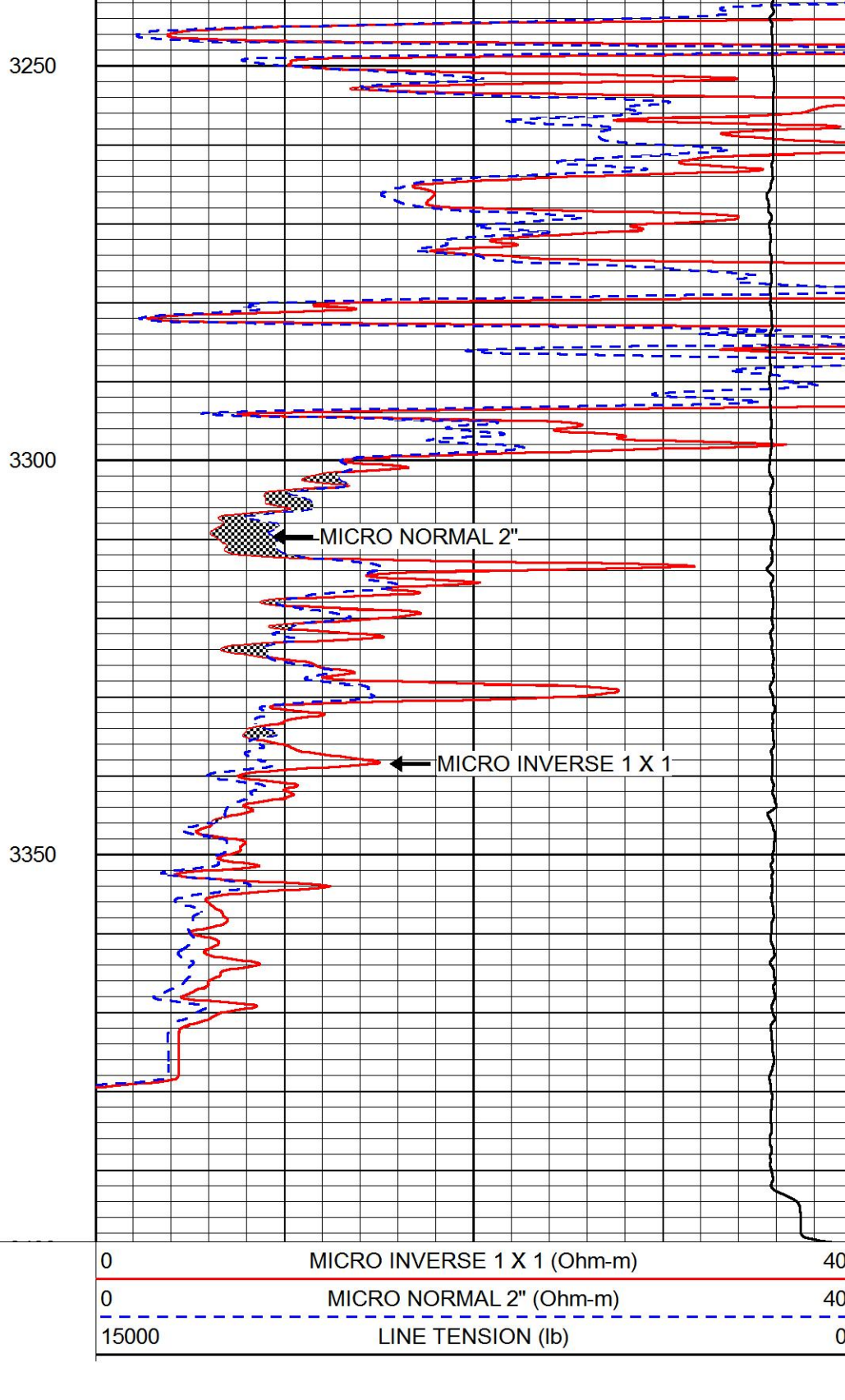
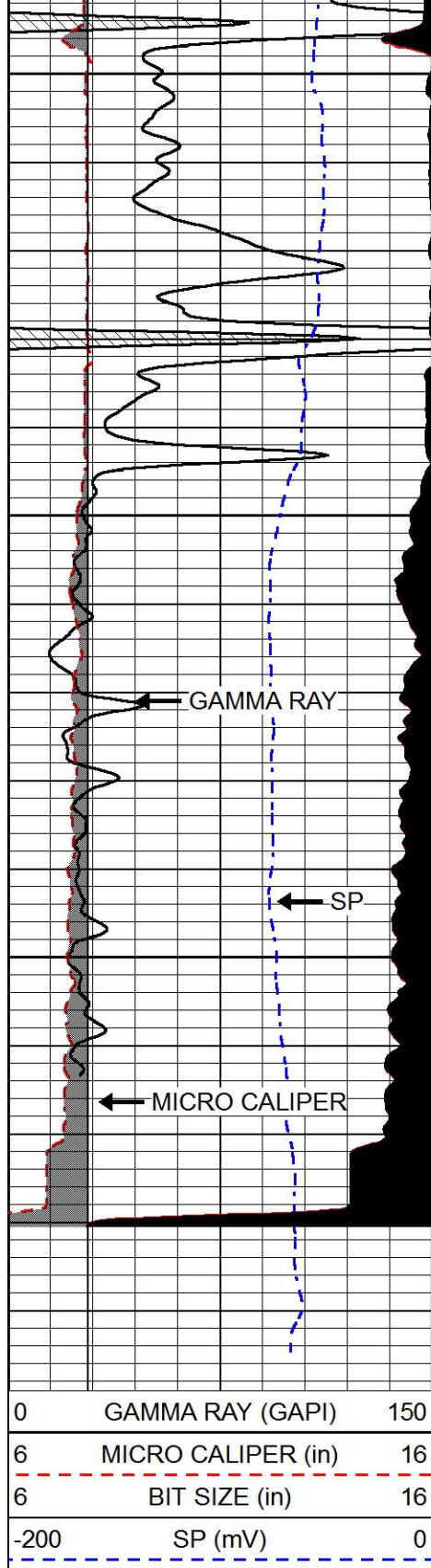
3050

3100

3150

3200

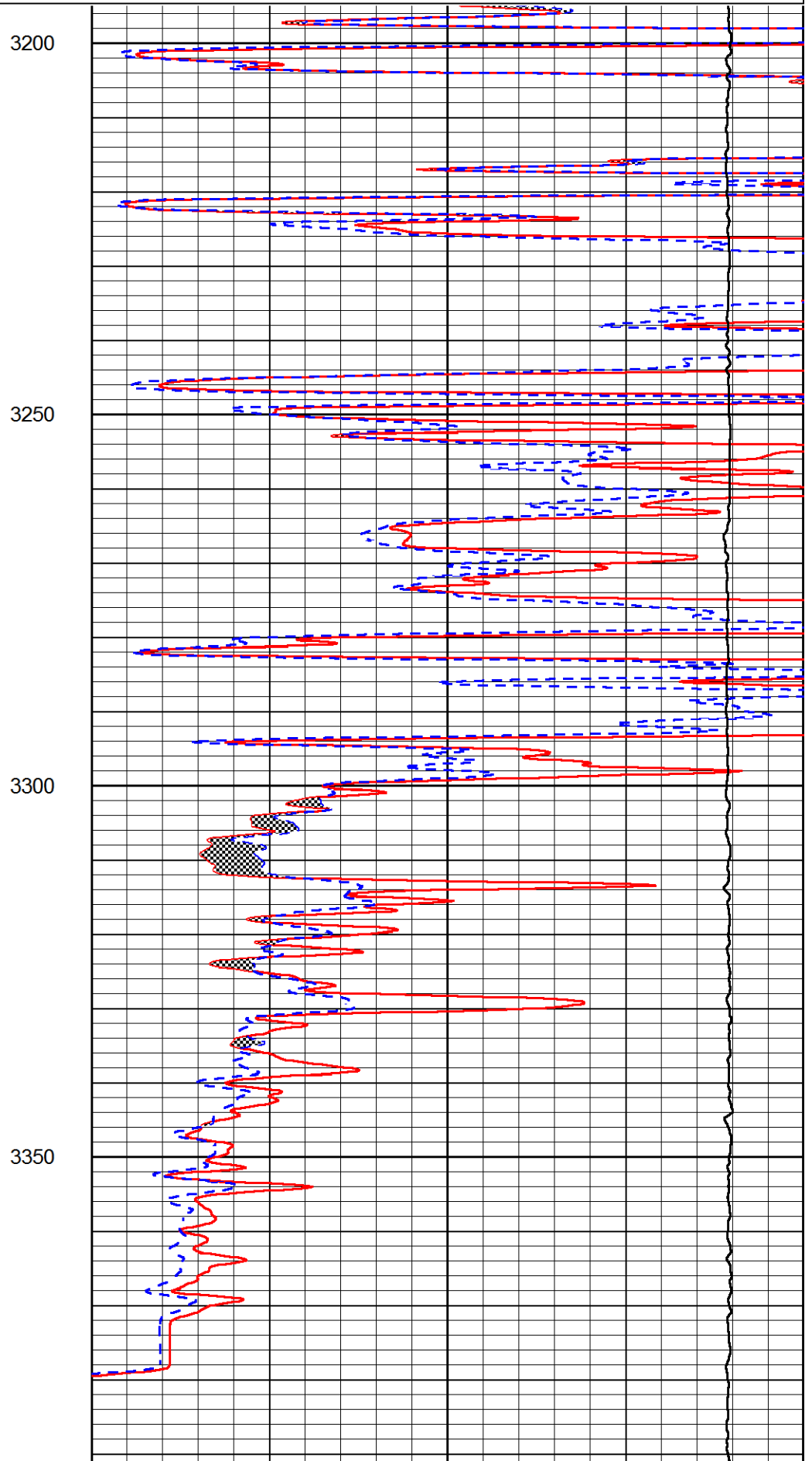
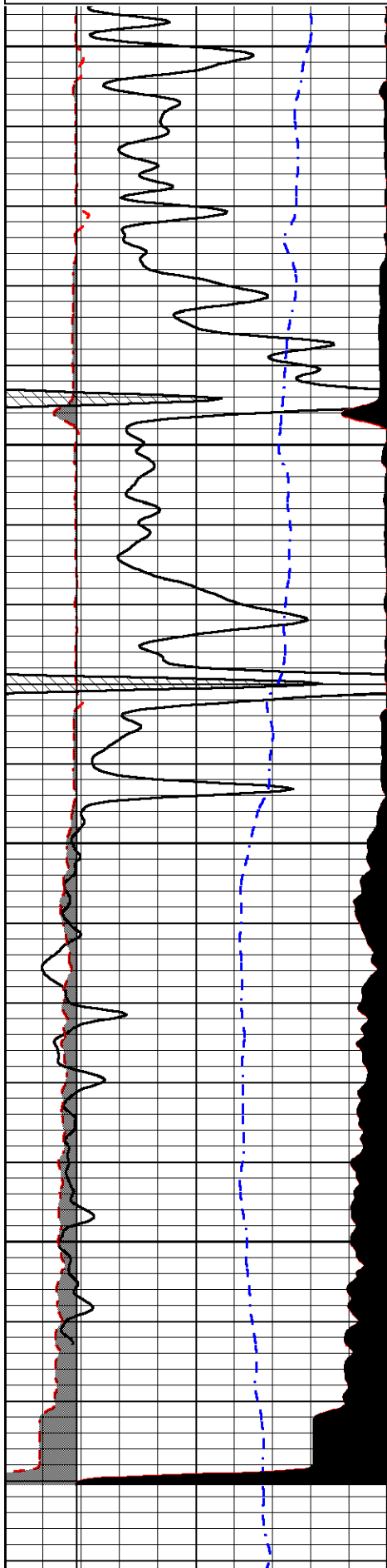




REPEAT SECTION

Database File casino_herter_4.db
 Dataset Pathname stack/pass2.1
 Presentation Format micro
 Dataset Creation Mon Jul 23 17:45:33 2018
 Charted by Depth in Feet scaled 1:240

0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0



0	GAMMA RAY (GAPI)	150	0	MICRO INVERSE 1 X 1 (Ohm-m)	40
6	MICRO CALIPER (in)	16	0	MICRO NORMAL 2" (Ohm-m)	40
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
-200	SP (mV)	0			

Calibration Report	
Database File	casino_herter_4.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Mon Jul 23 17:44:39 2018

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Apr 11 17:07:38 2017

Readings			References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Compensated Density Calibration Report
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Serial-Model:	979-229-M&W
Source / Verifier:	21170B /
Master Calibration Performed:	Tue Jun 26 07:59:32 2018

Master Calibration					
Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc	7726.98	9910.47	cps
Aluminum	2.680	g/cc	1442.93	6391.03	cps
Spine Angle = 75.35			Density/Spine Ratio = 0.533		
Size			Reading		
Small Ring	4.00	in	1.16		
Large Ring	16.00	in	1.03		

Compensated Neutron Calibration Report
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Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Wed Nov 16 11:21:36 2016

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-M&W
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Tool Model: M&W
Calibration Performed: Tue Apr 11 17:08:01 2017

Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps



Company	CASINO PETROLEUM, LLC
Well	HERTER NO. 4
Field	CHASE-SILICA
County	BARTON
State	KANSAS