



PIONEER

Pioneer Energy Services

DUAL INDUCTION LOG

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

Location: API #: 15-009-26224-00-00

Other Services

SEC 8 TWP 20S RGE 11W
330' FSL & 1320' FEL

CNL/CDL
MEL/BHCS

Permanent Datum **GROUND LEVEL** Elevation **1772'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 1782'
D.F. N/A
G.L. 1772'

Date 7/23/2018

Run Number ONE

Depth Driller 3400'

Depth Logger 3393'

Bottom Logged Interval 3392'

Top Log Interval 250'

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

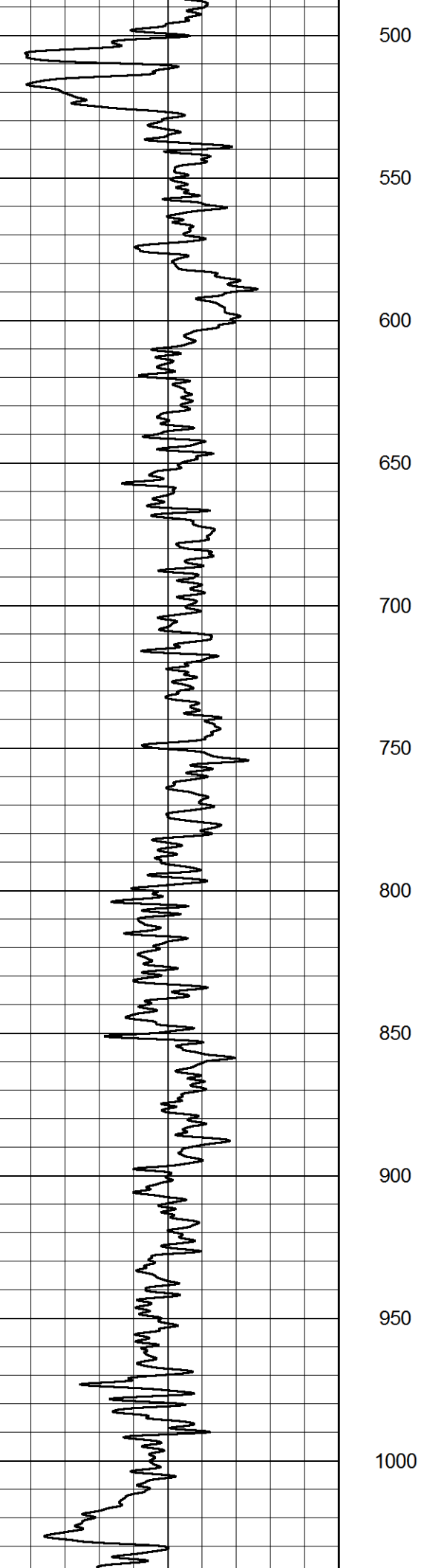
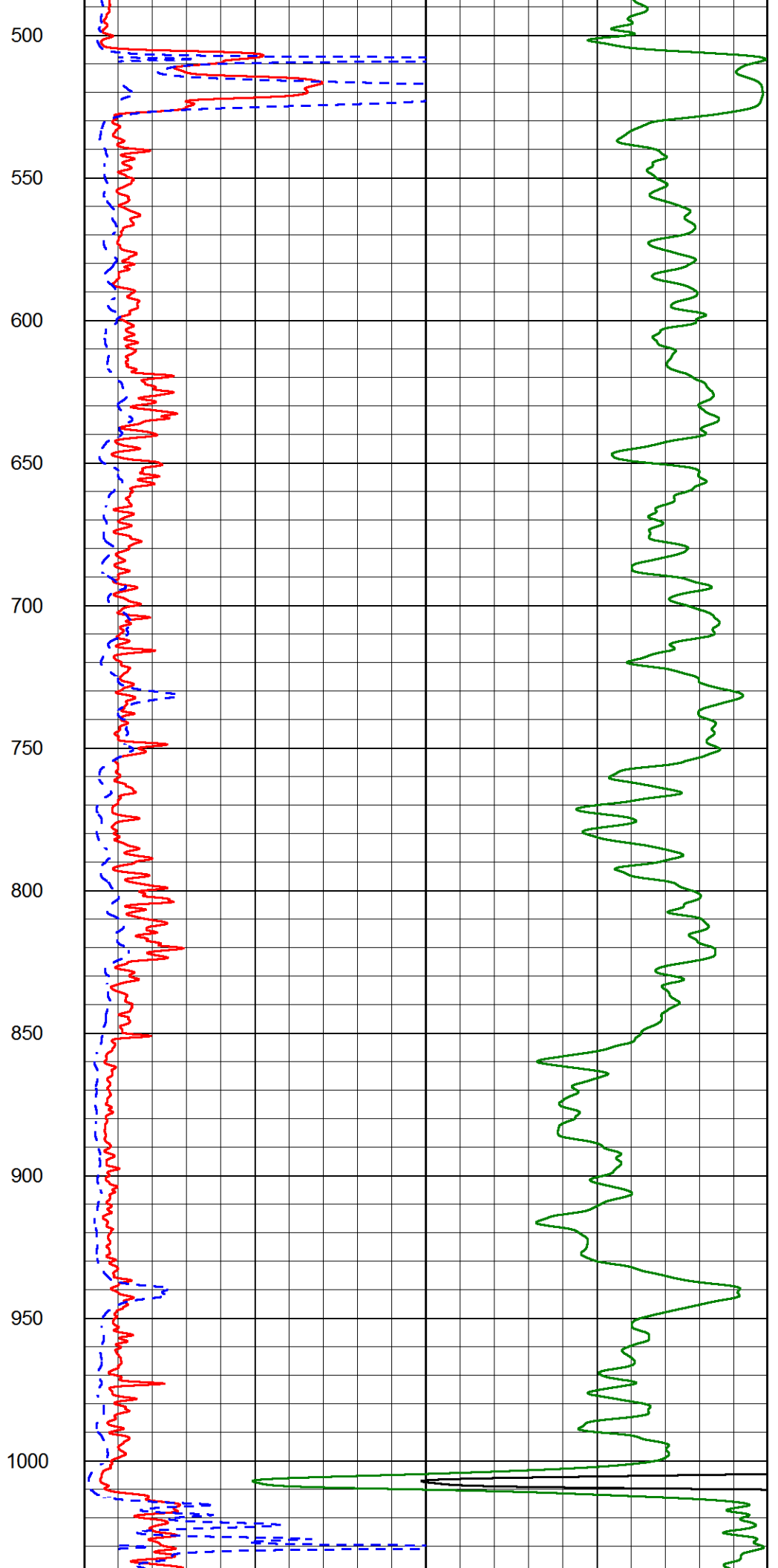
Primary Witness: JIM MUSGROVE
Secondary Witness:
Secondary Witness:
Secondary Witness:

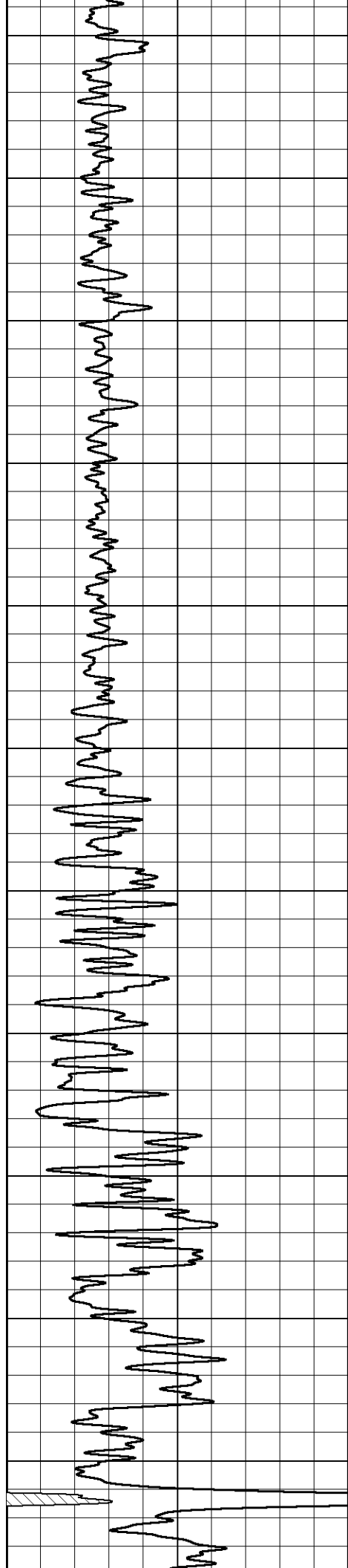
Top - Bottom

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)
GR	33.00			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
	29.15						
LSD DCAL SSD	20.85			CDL-M&W (979-229)	8.50	4.00	250.00
	20.83						
	20.35						
RLL3 RLL3F	15.80 15.79						
CILD	8.00			DIL-M&W (1987)	18.50	3.50	220.00

0.20





1050

1100

1150

1200

1250

1300

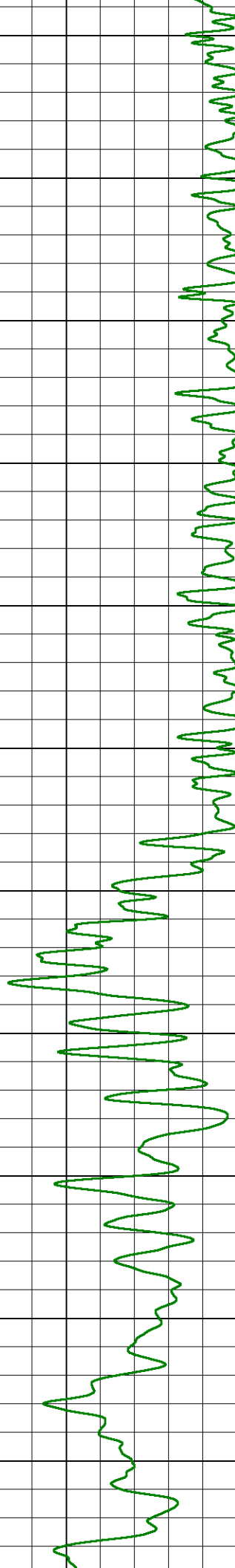
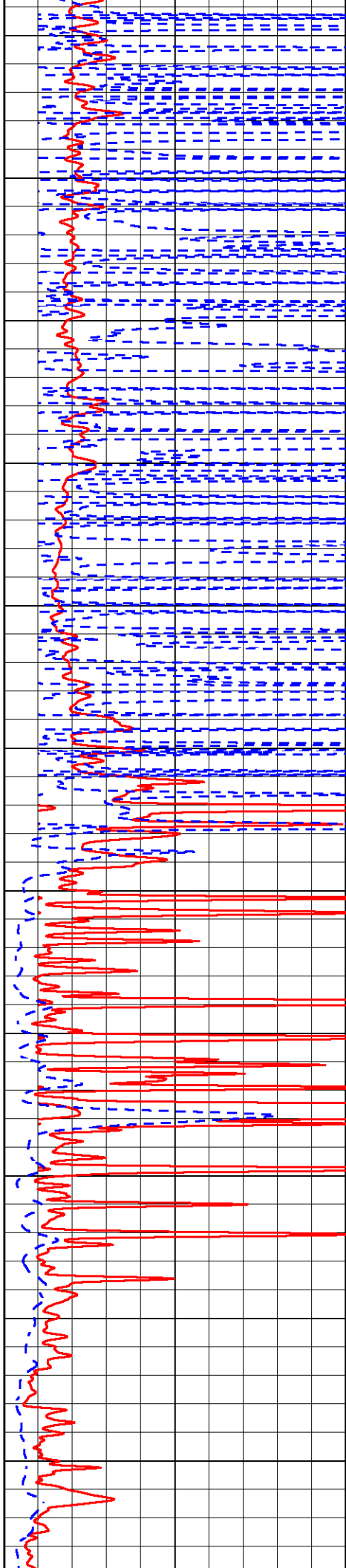
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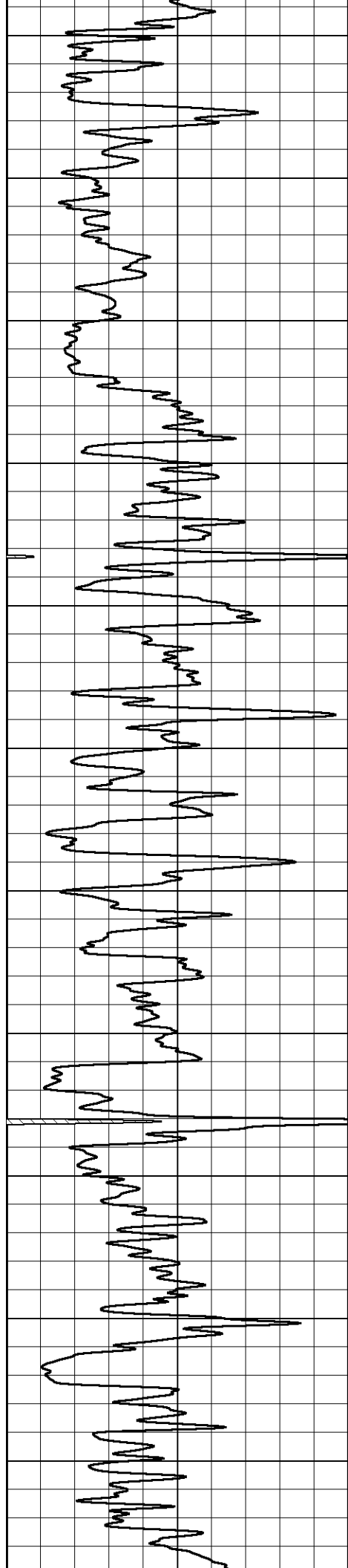
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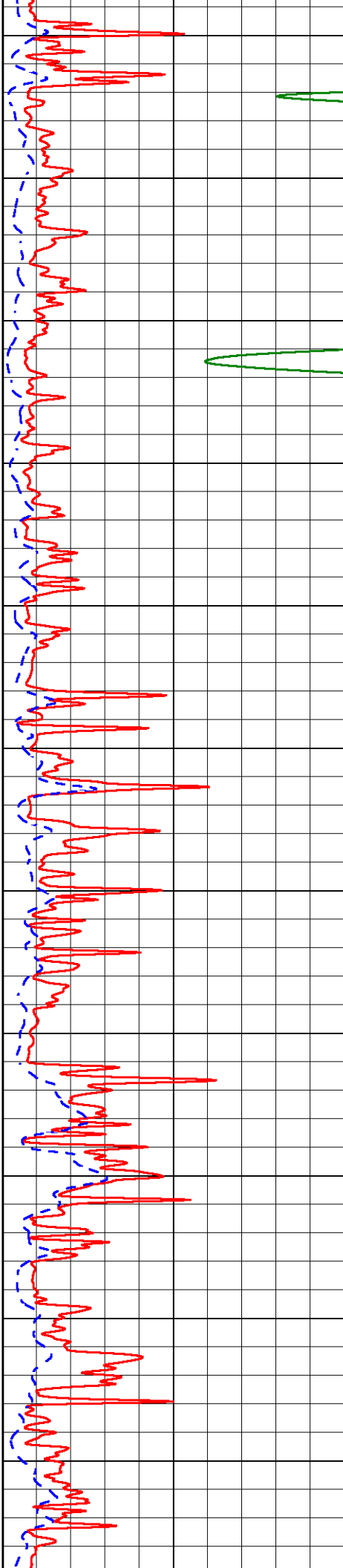
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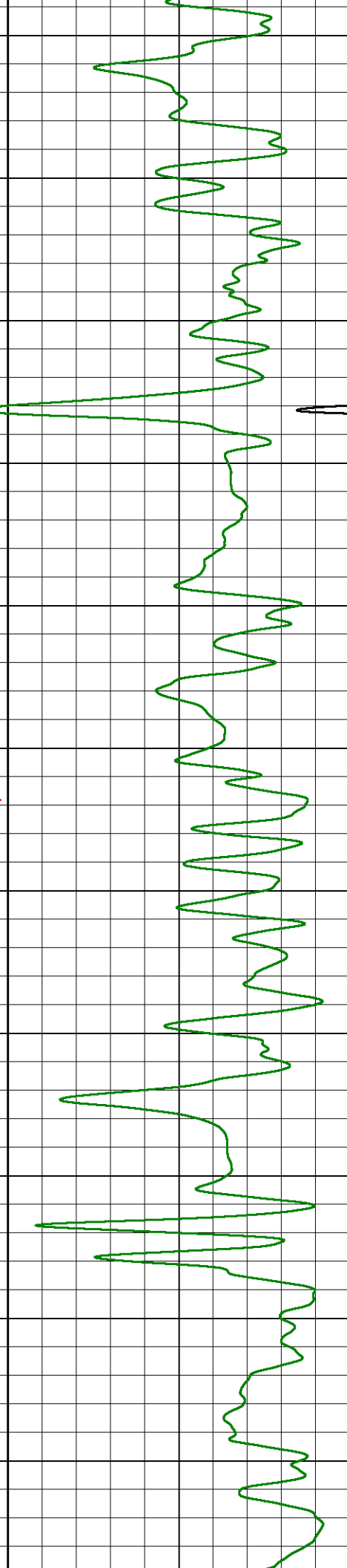
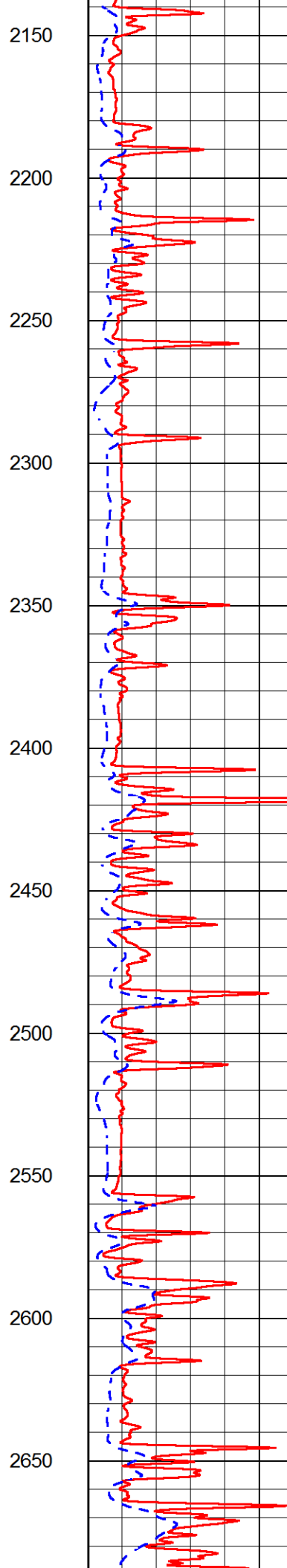
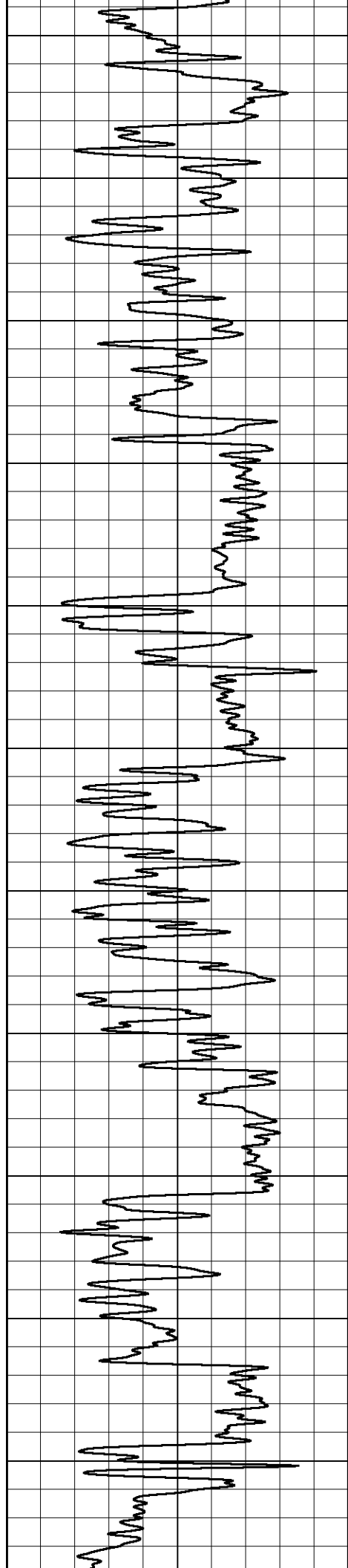
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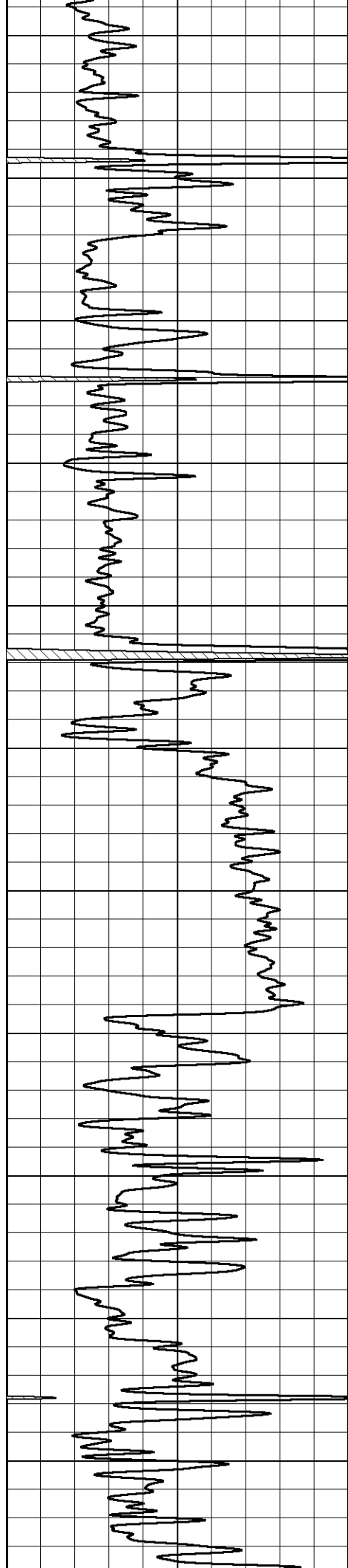




1600
1650
1700
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1900
1950
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2100







2700

2750

2800

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2900

2950

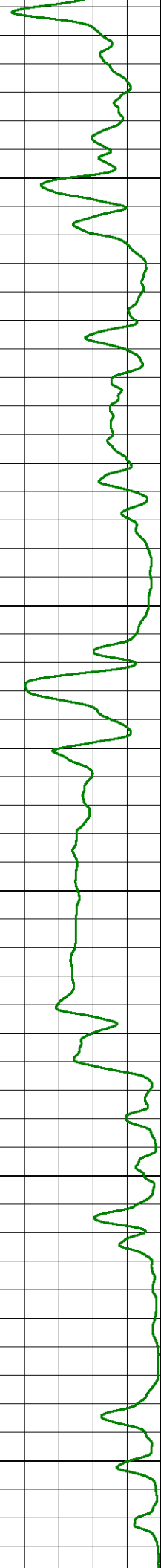
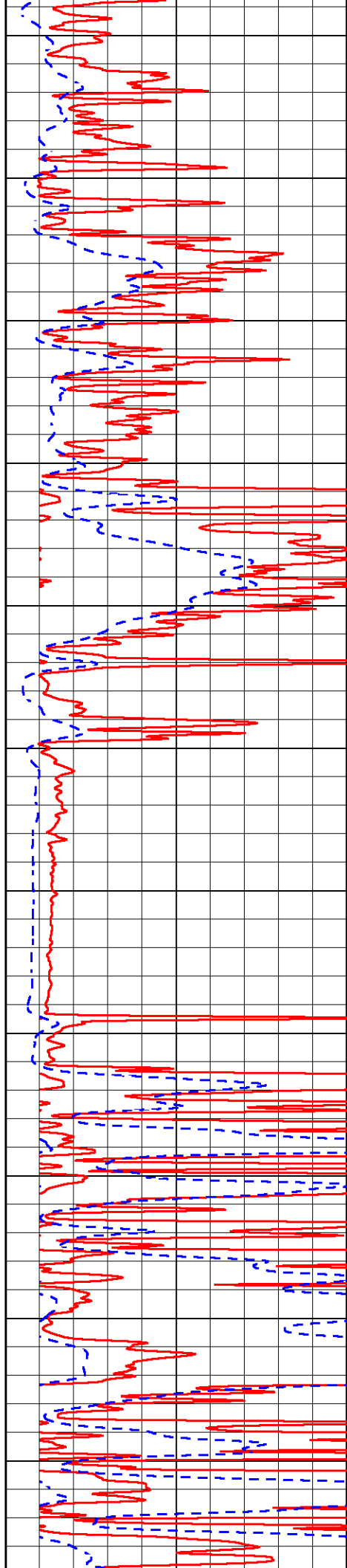
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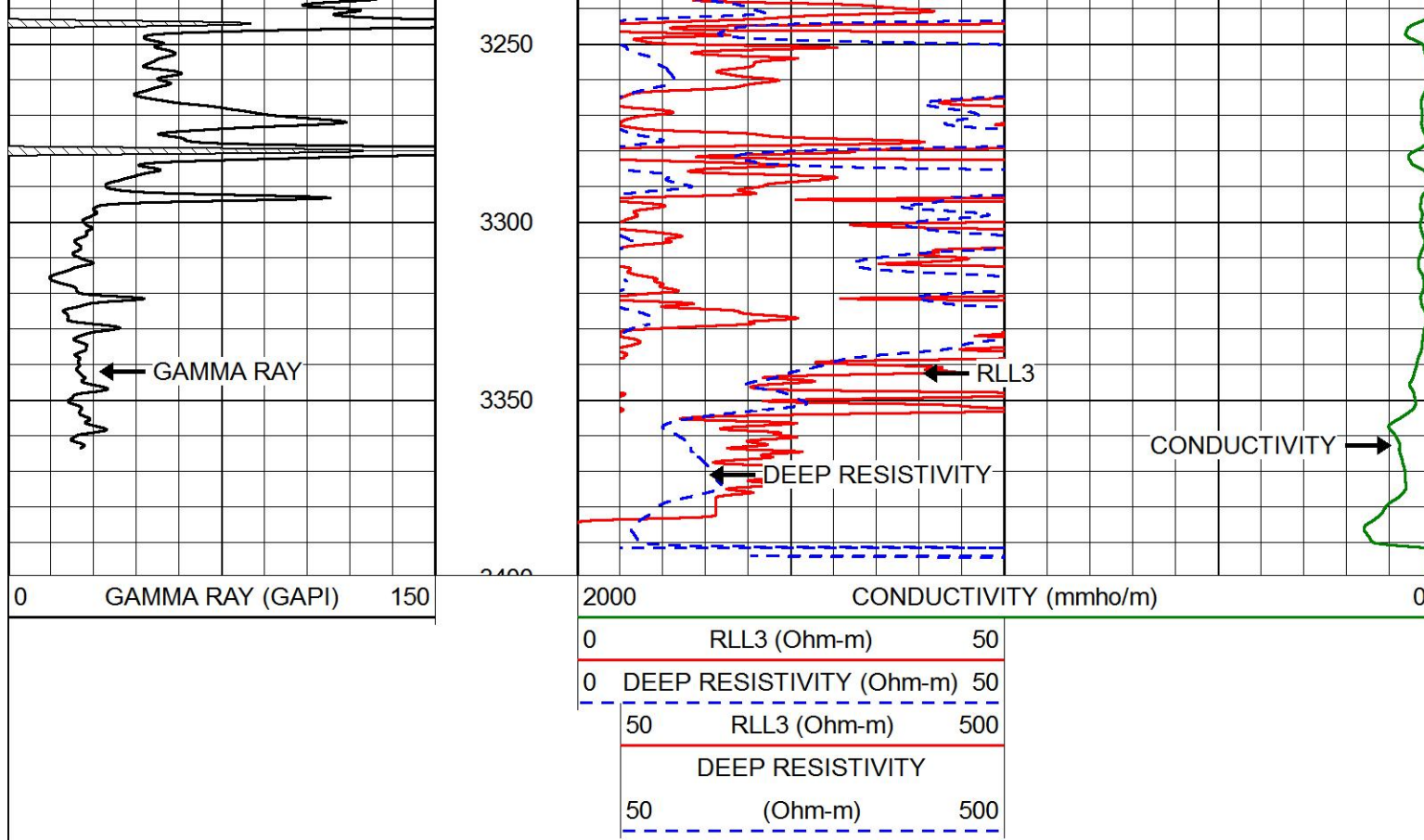
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3100

3150

3200

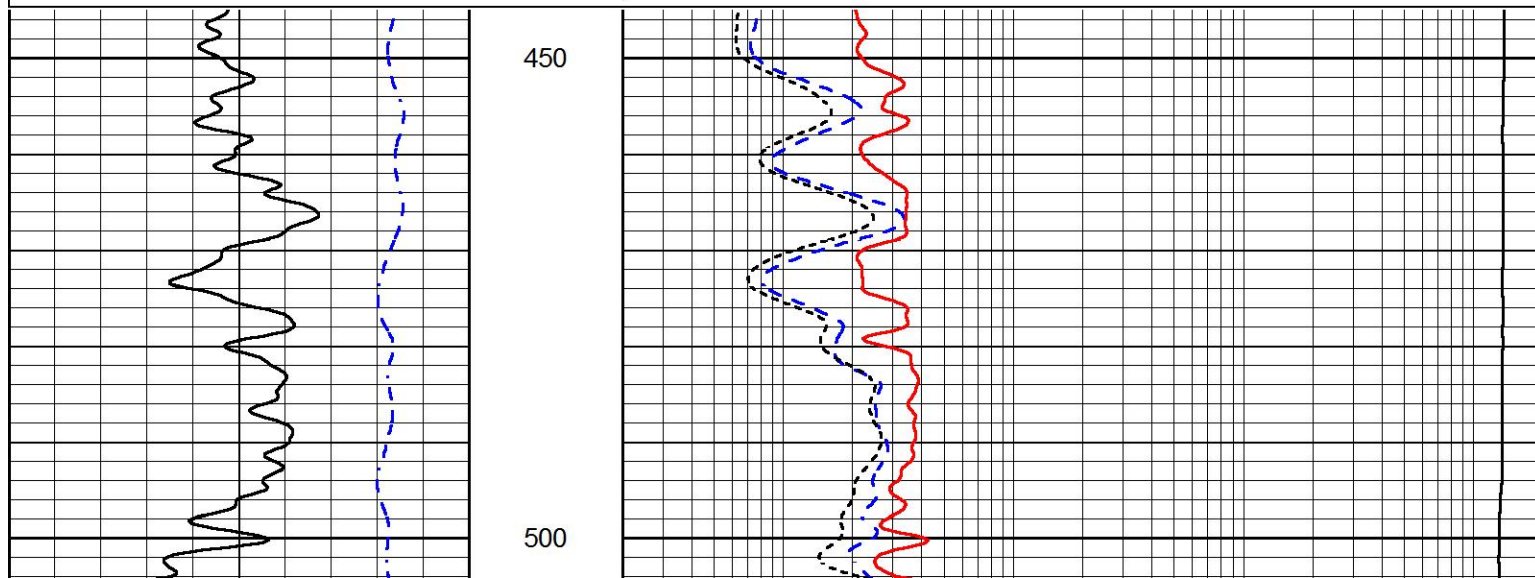


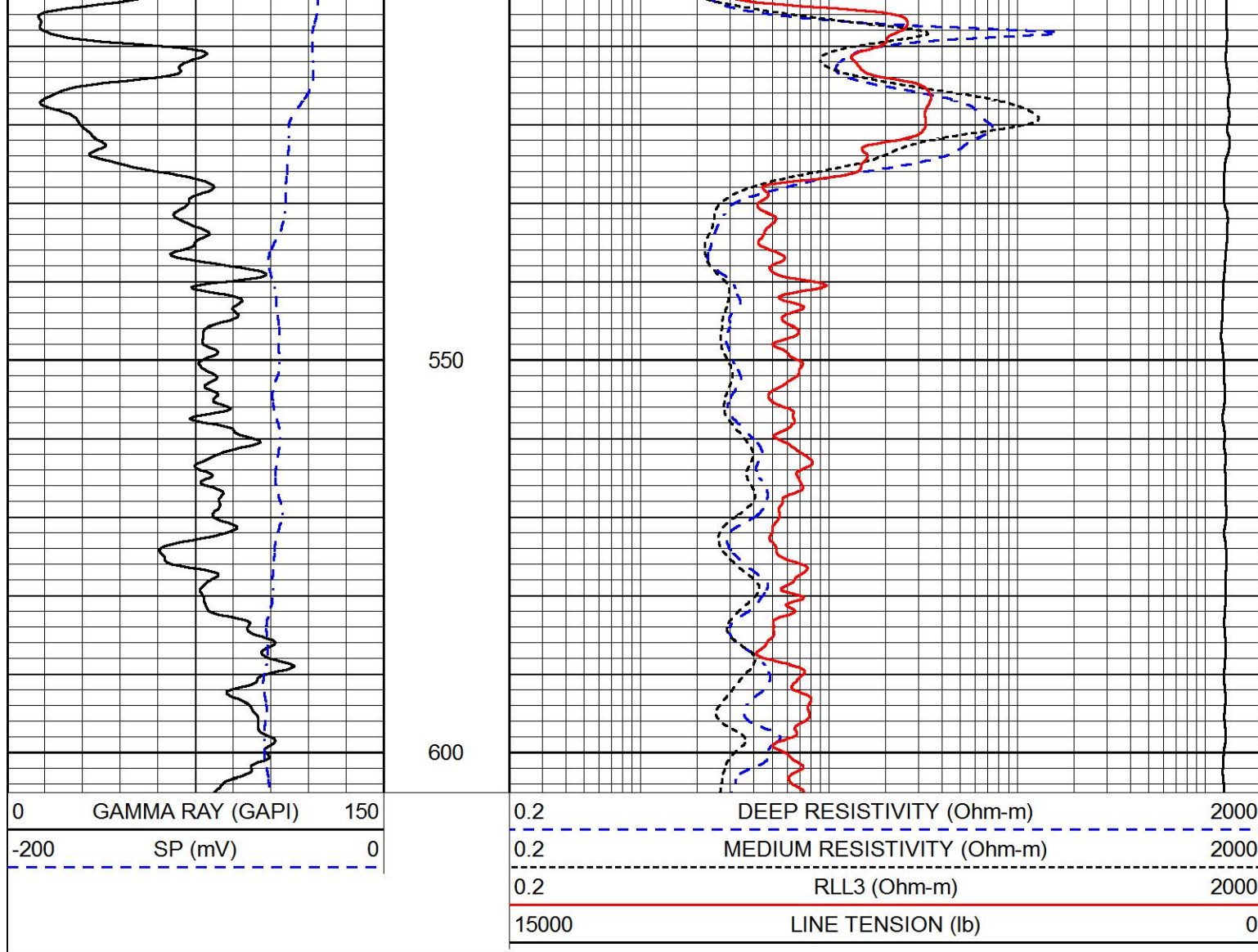


MAIN PASS

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

0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			15000	LINE TENSION (lb)	0



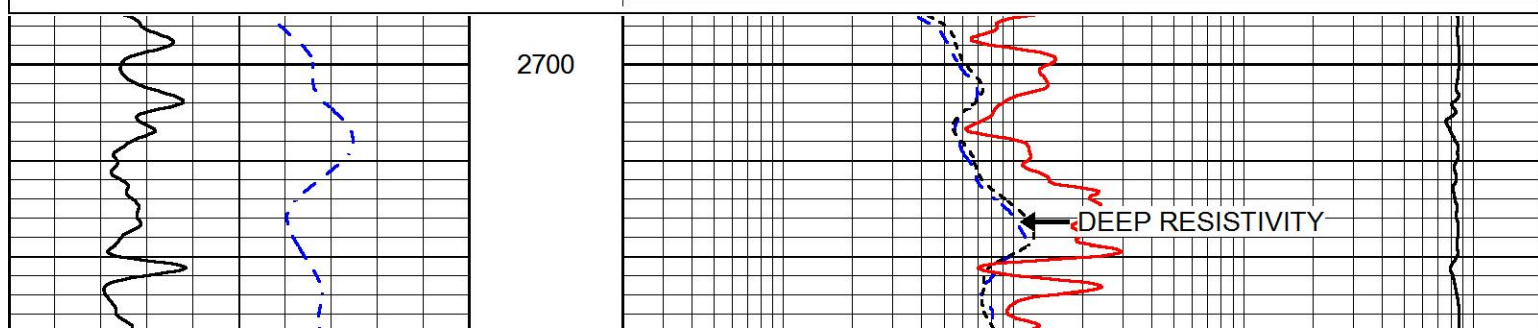
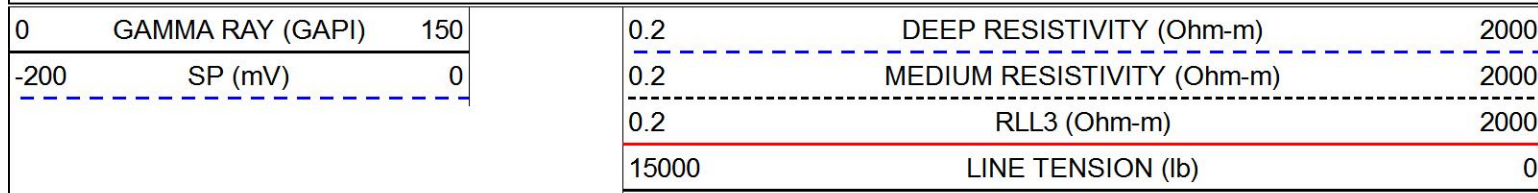


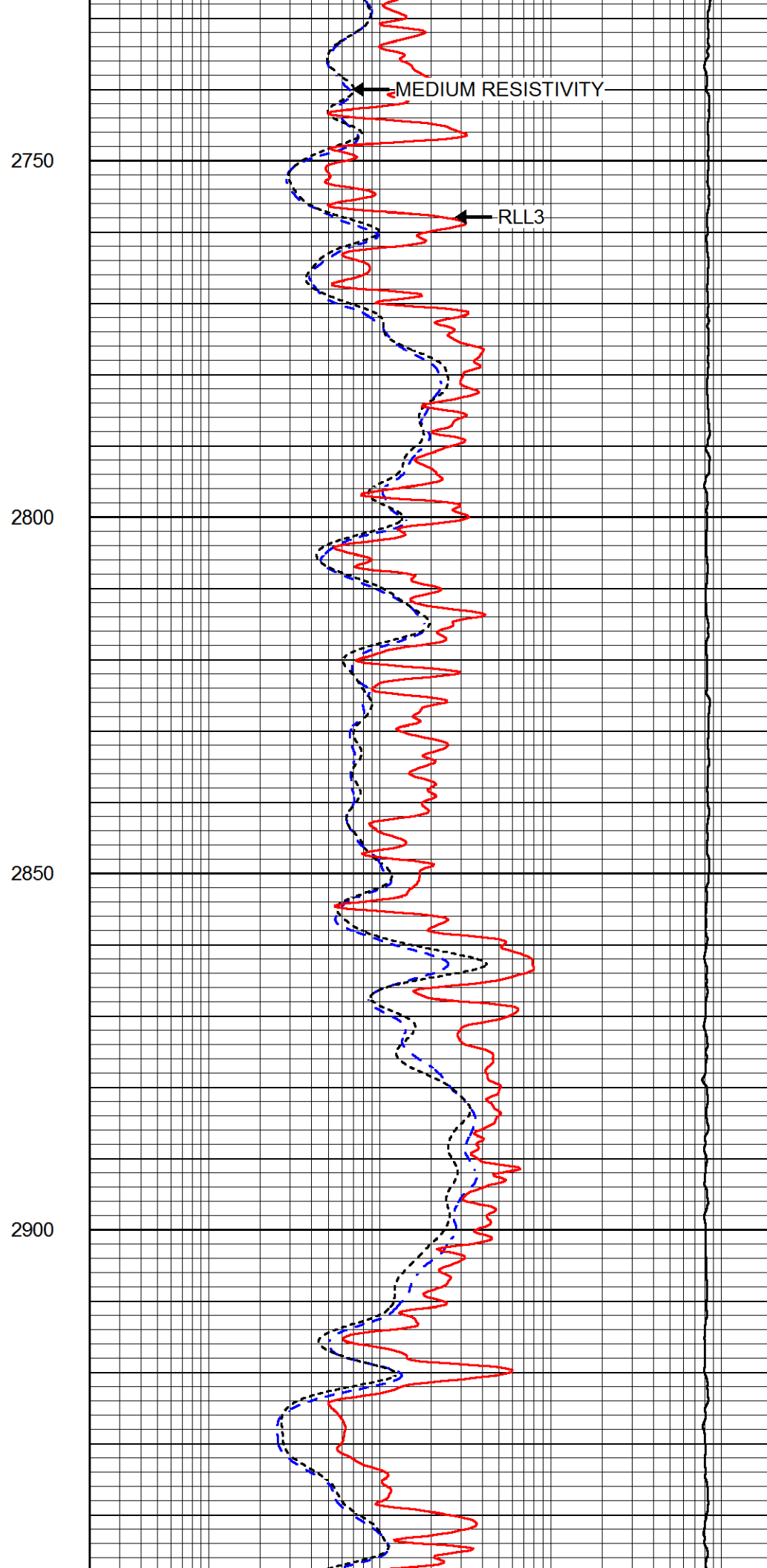
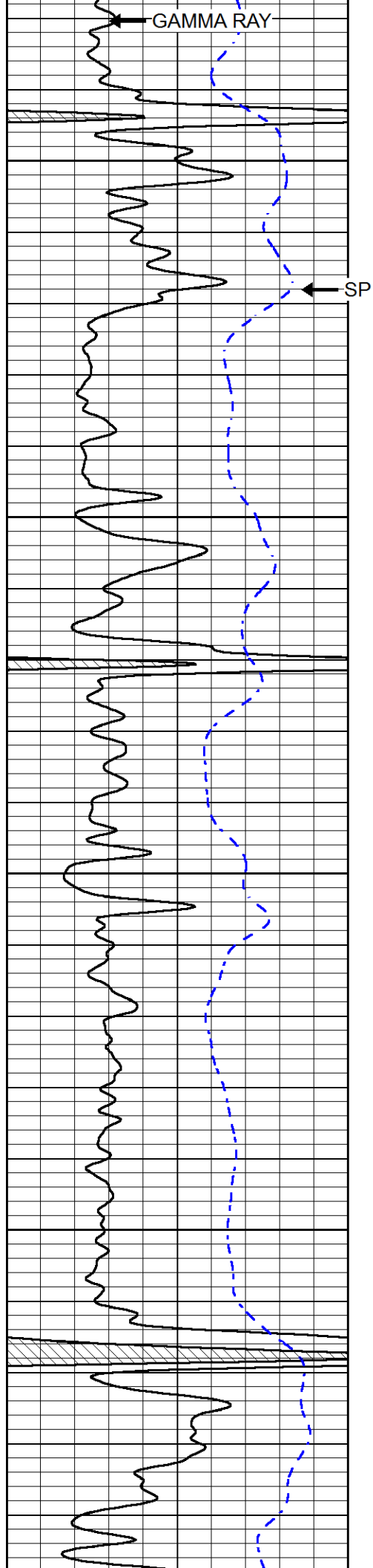


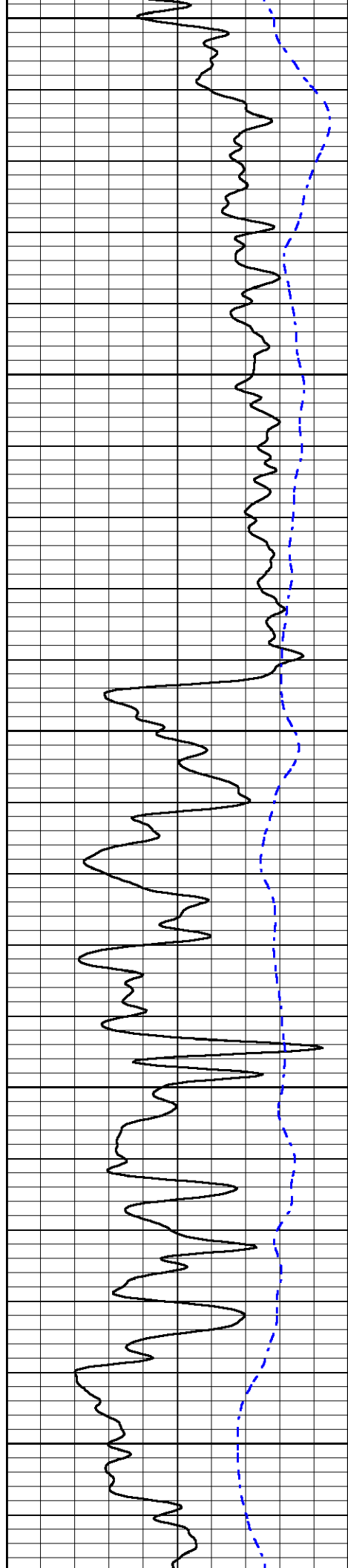
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Database File	casino_herter_4.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil
Dataset Creation	Mon Jul 23 17:44:39 2018
Charted by	Depth in Feet scaled 1:240







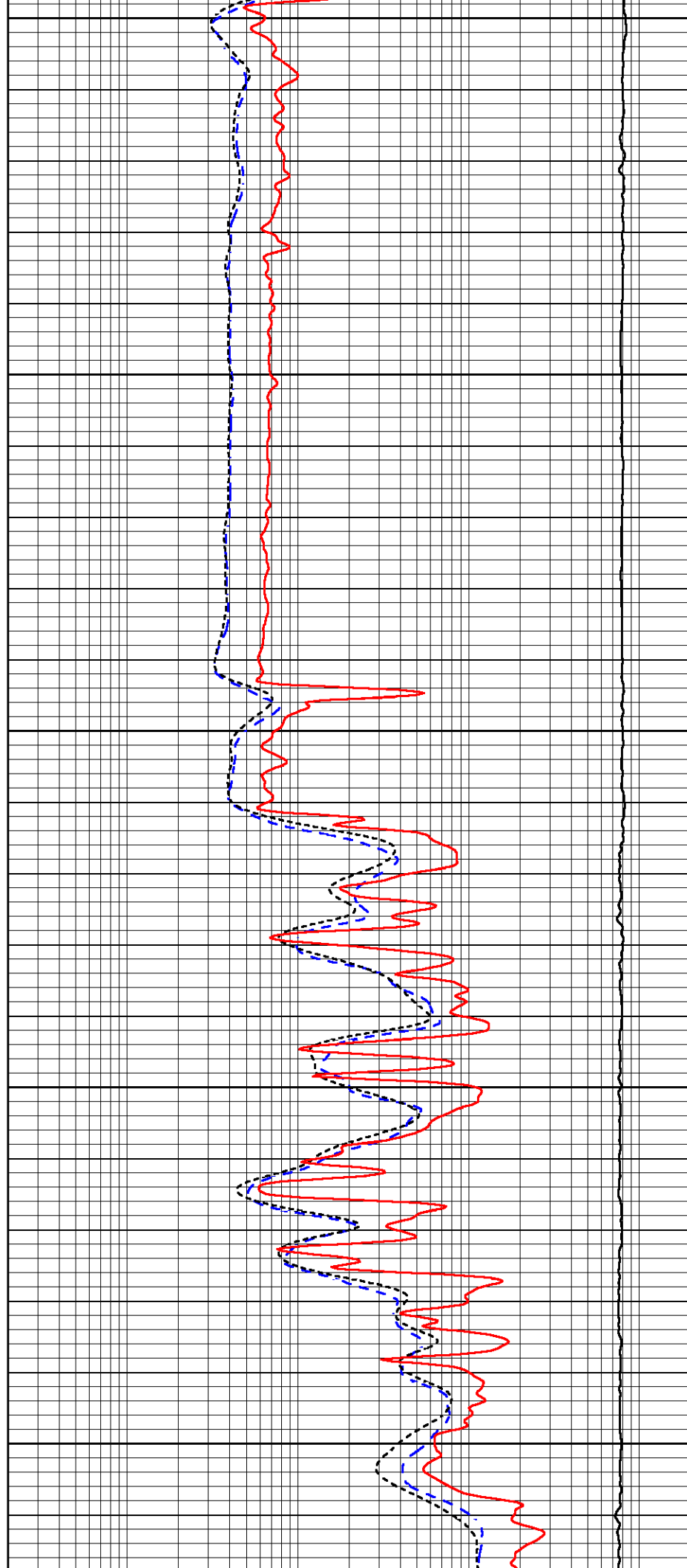
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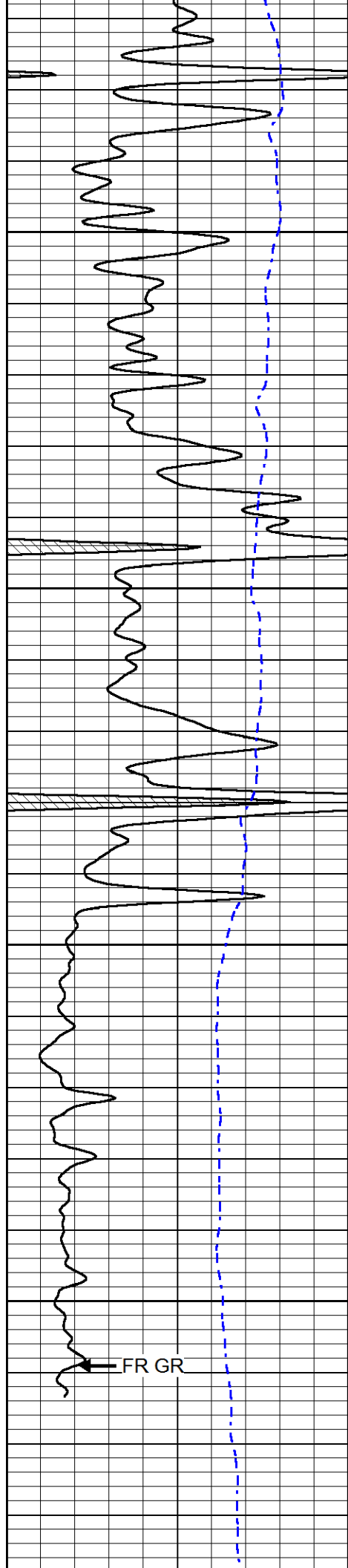
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3050

3100

3150



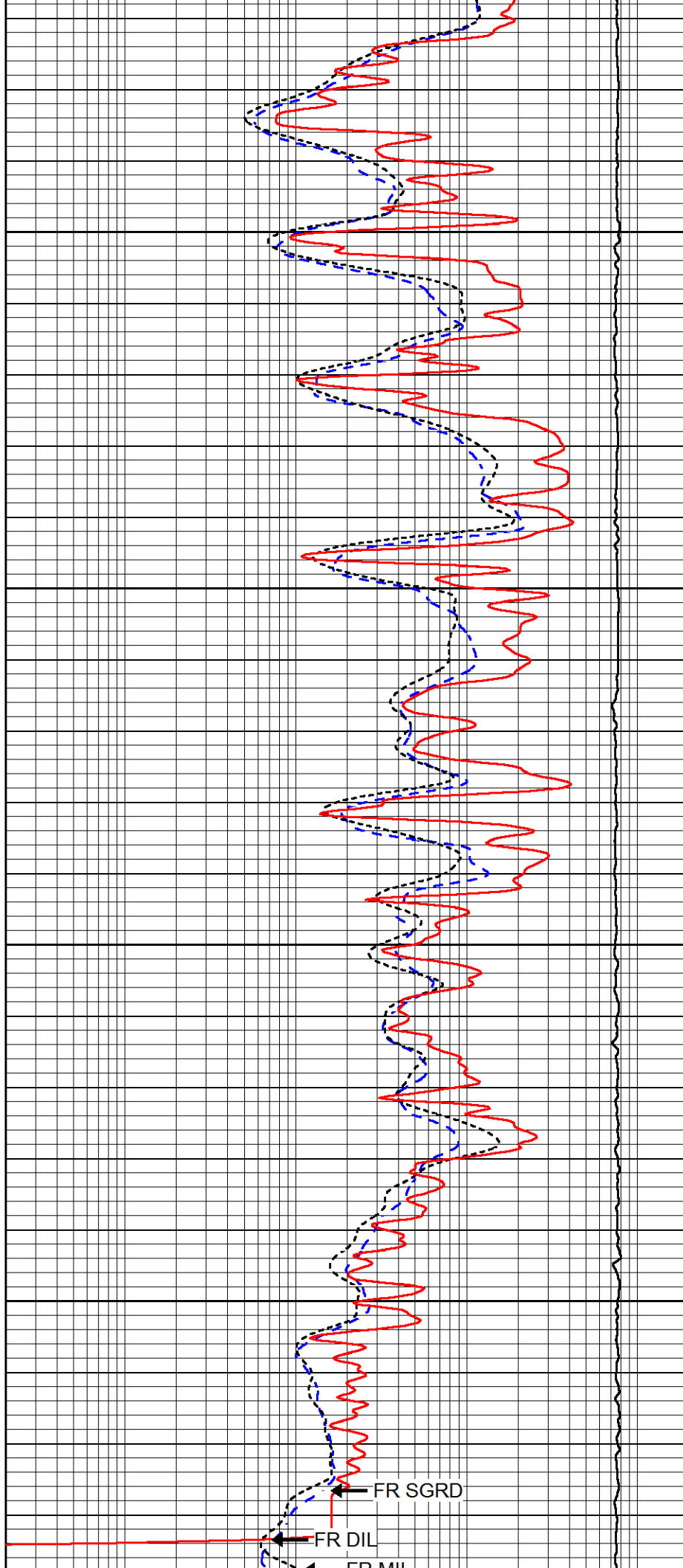


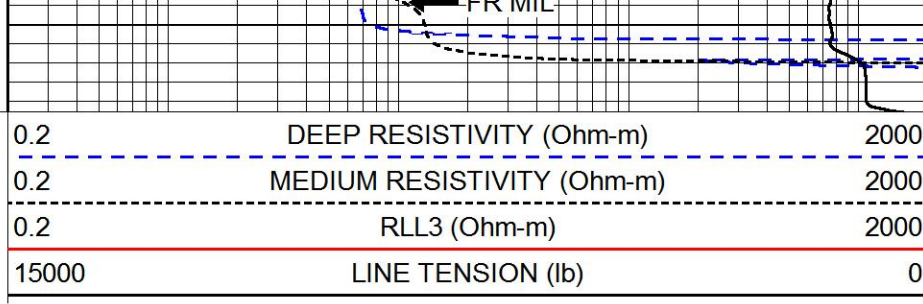
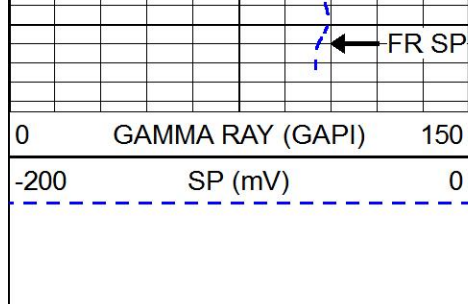
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3250

3300

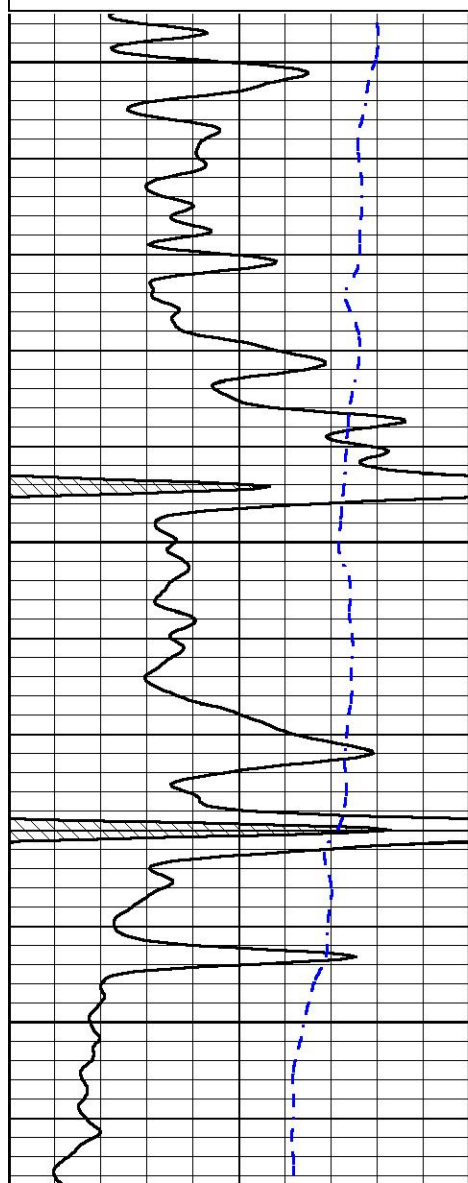
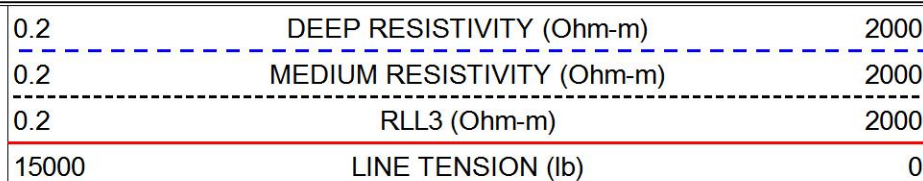
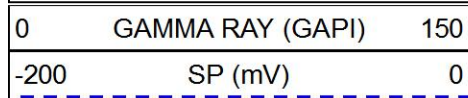
3350





REPEAT SECTION

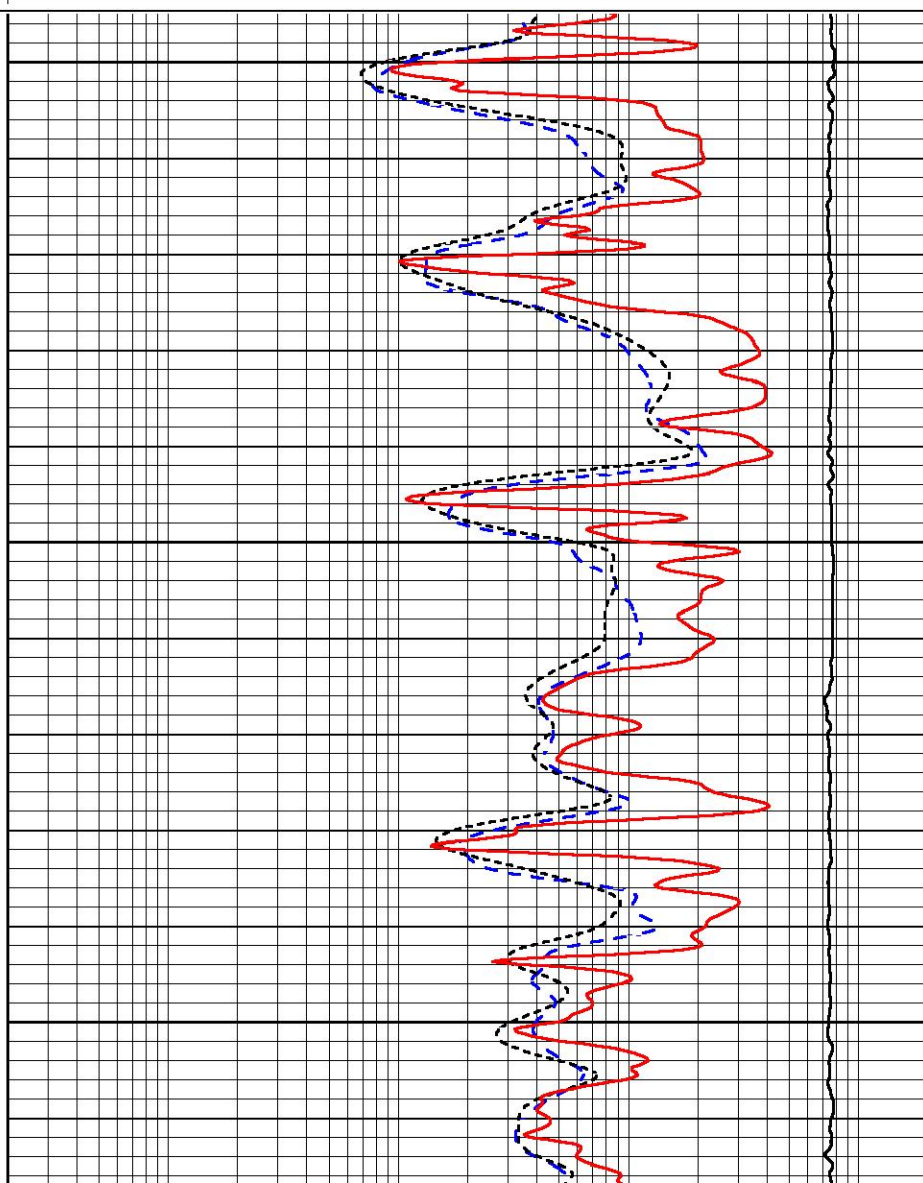
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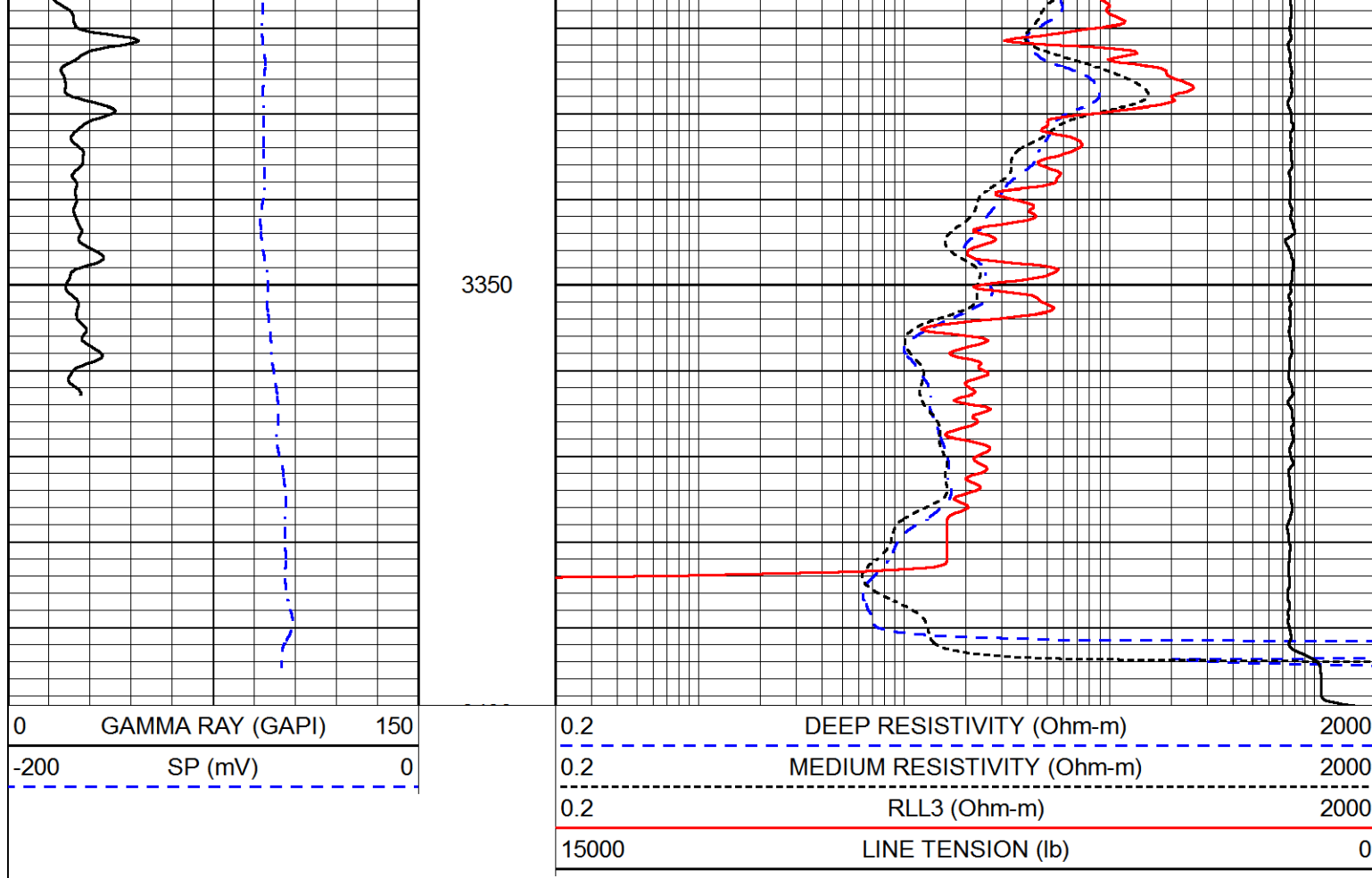


3200

3250

3300





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

Loop:	Readings		References			Results	
	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

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

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
 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



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 State KANSAS