



PIONEER
Pioneer Energy Services

**DUAL INDUCTION
LOG**

Company **COBALT ENERGY LLC**
Well **BINNS A #1-32**
Field **WILDCAT**
County **LOGAN** State **KANSAS**

Location: API #: 15-109-21454-00-00

Other Services

SEC 32 TWP 15S RGE 33W
1067' FSL & 1032' FWL

CNL/CDL
MEL/BHCS

Permanent Datum GROUND LEVEL Elevation 3040'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 3051'
D.F. N/A
G.L. 3040'

Date	8/27/2016		
Run Number	ONE		
Depth Driller	4799'		
Depth Logger	4794'		
Bottom Logged Interval	4793'		
Top Log Interval	200'		
Casing Driller	8.625" @ 221'		
Casing Logger	223'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	5000		
Density / Viscosity	9.3 57		
pH / Fluid Loss	10.5 8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.73 @ 82		
Rmt @ Meas. Temp	0.55 @ 82		
Rmc @ Meas. Temp	0.99 @ 82		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.48 @ 124		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	124		
Equipment Number	108		
Location	COLBY		
Recorded By	T. MARTIN		
Witnessed By	COREY N. BAKER		

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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.

SCOTT LAKE, HWY 95 AND 270 RD, 5 W TO GRANT RD,
3 N, W INTO AT SHED, THRU GATE

Log Measured From: KELLY BUSHING

11 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

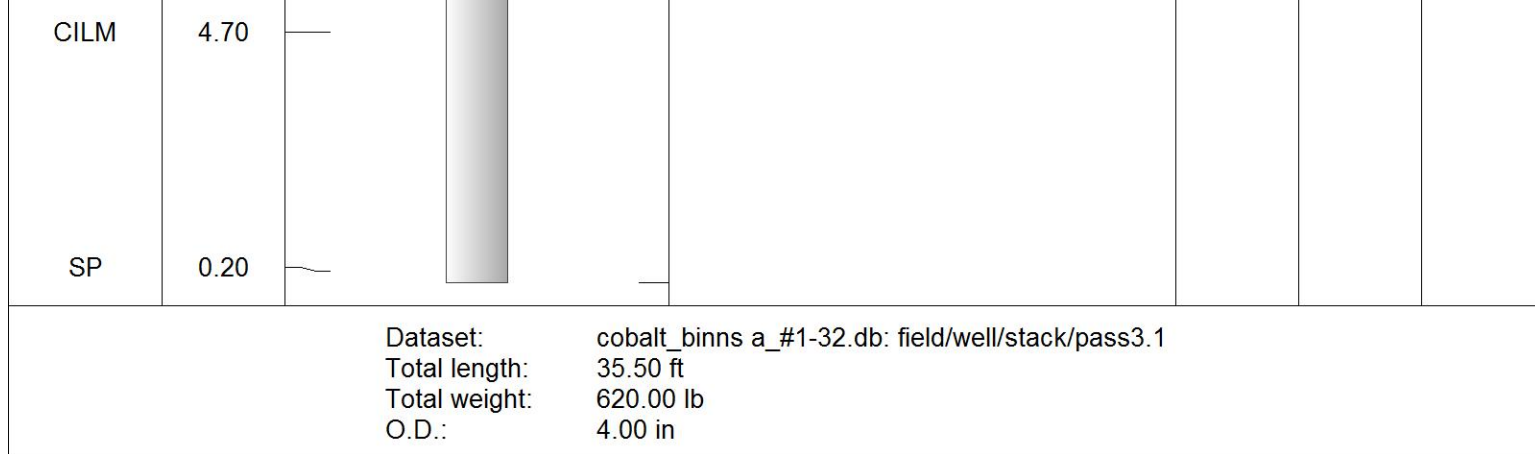
Engineer: T. MARTIN
Operator:
Operator:
Operator:

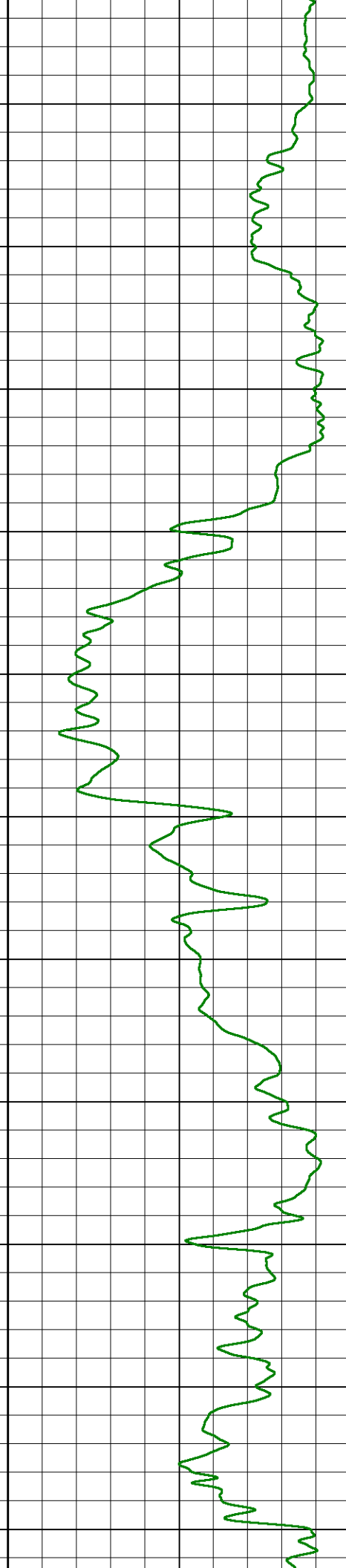
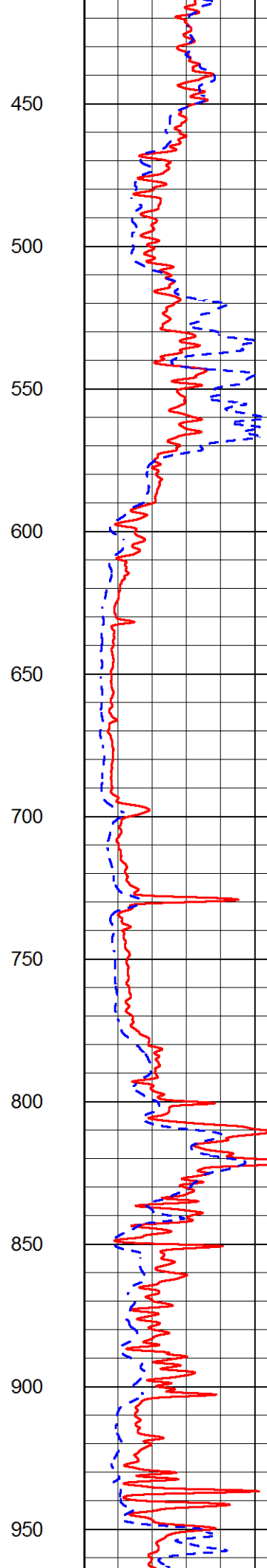
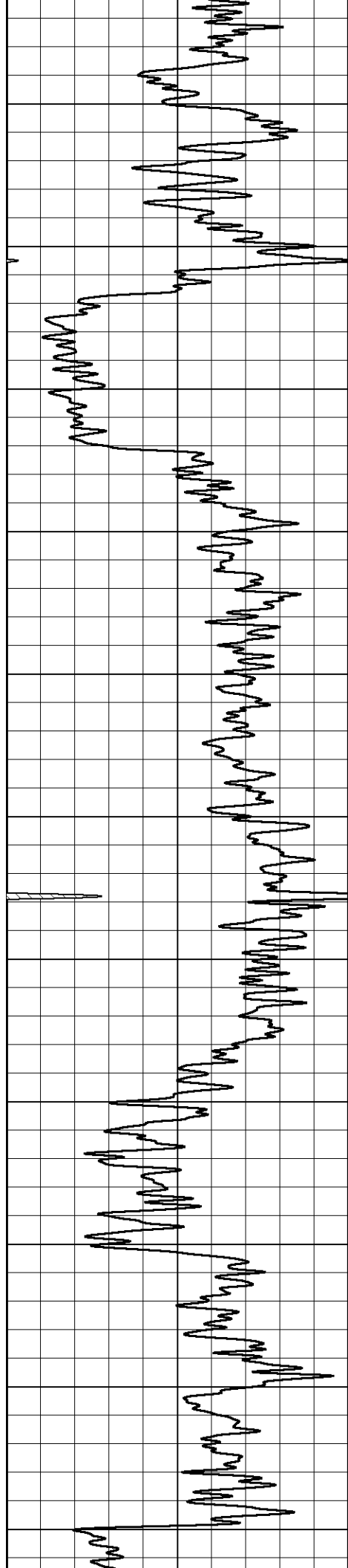
Primary Witness: COREY N. BAKER
Secondary Witness:
Secondary Witness:
Secondary Witness:

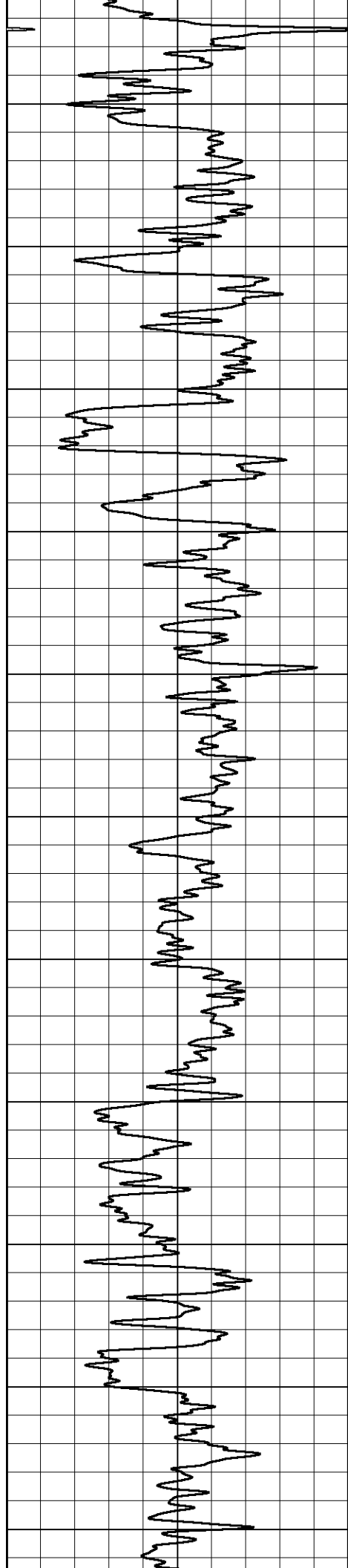
Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 124	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 0	mV -460	degF 82	Off	ft 4794

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	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	29.15						
LSD DCAL SSD	20.85			CDL-M&W (71-914)	8.50	4.00	250.00
	20.83						
	20.35						
RLL3	15.80			DIL-M&W (1987)	18.50	3.50	220.00
RLL3F	15.79						
CILD	8.00						







1000

1050

1100

1150

1200

1250

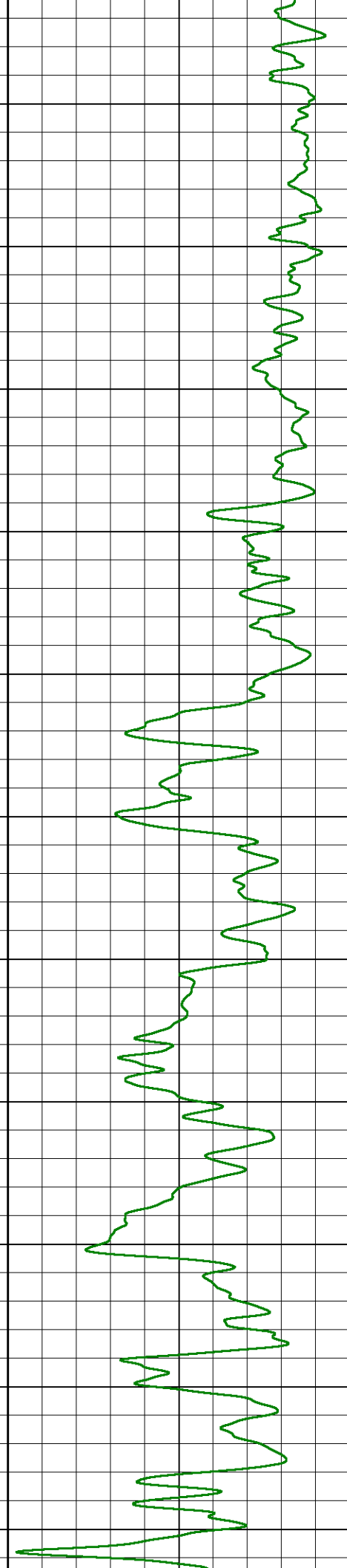
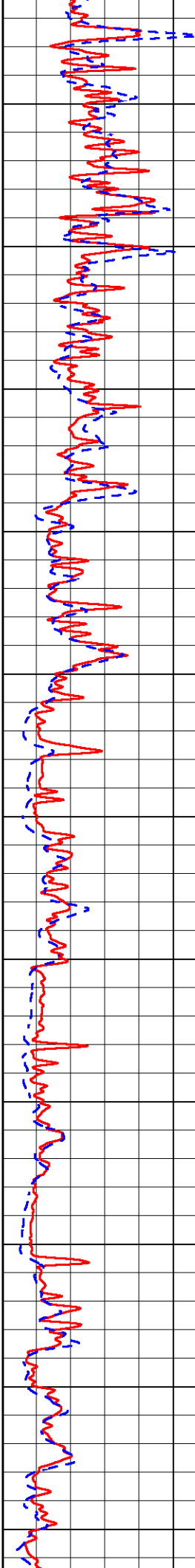
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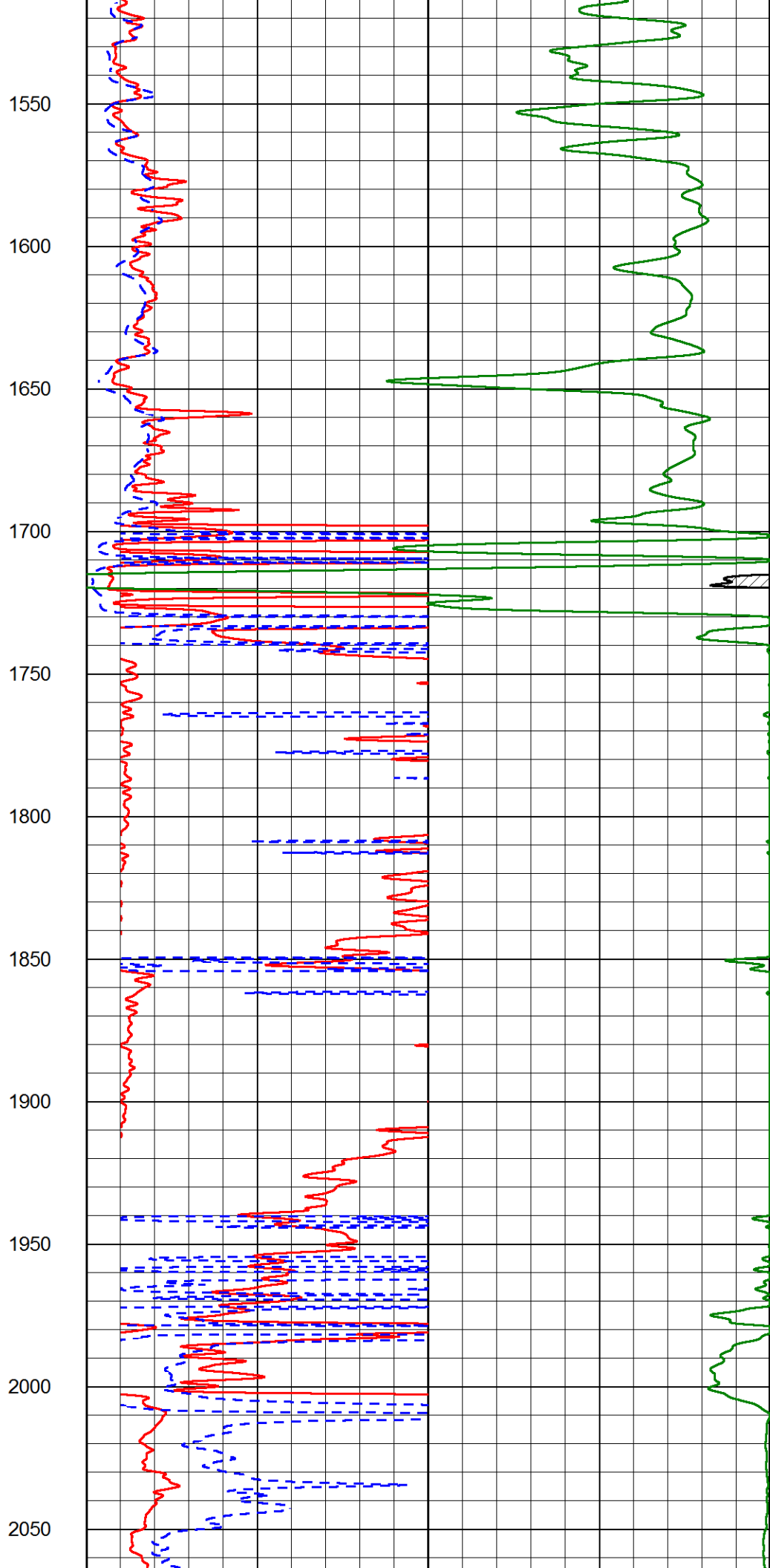
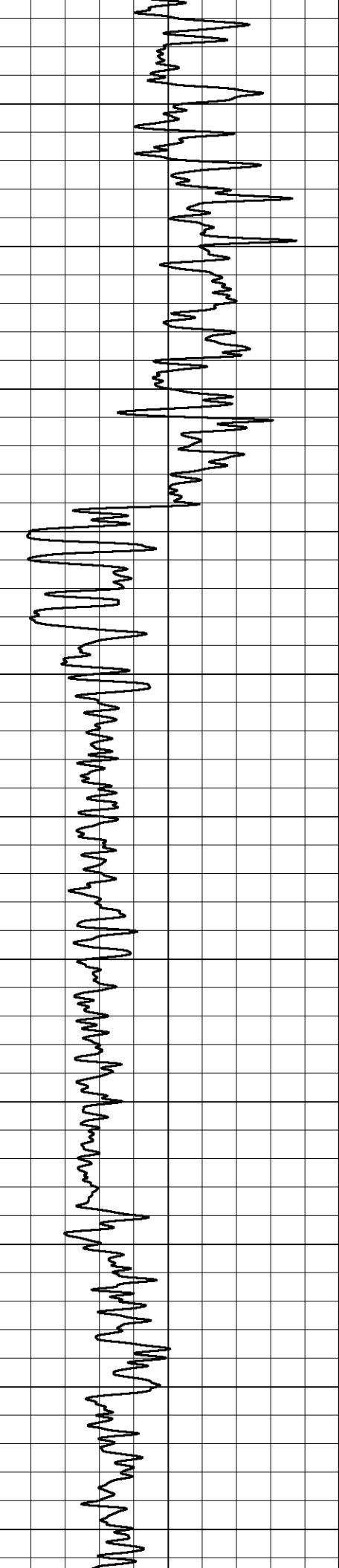
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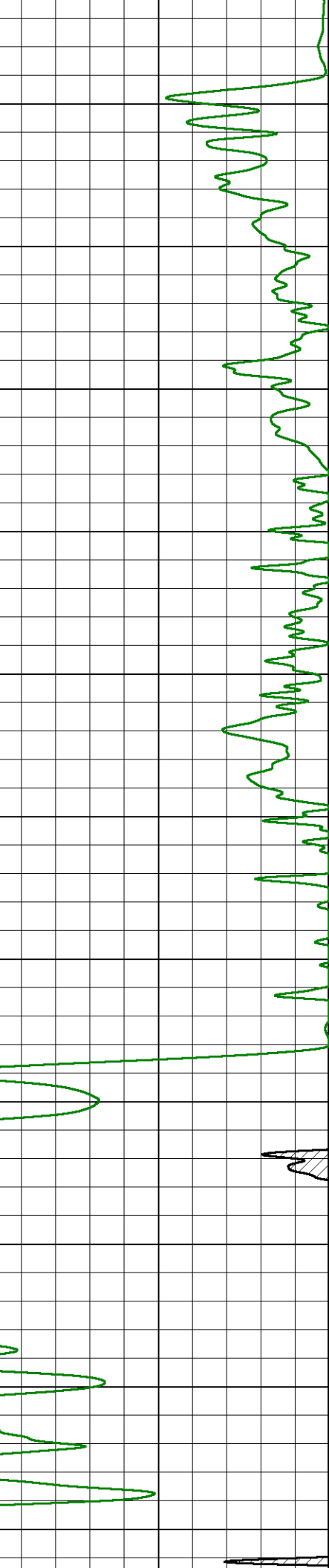
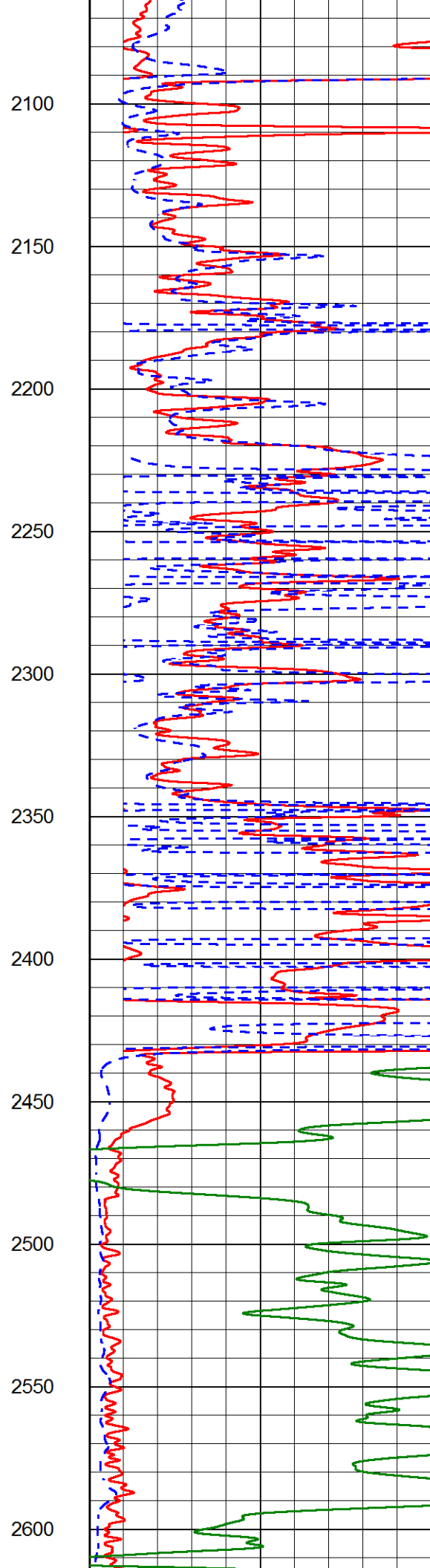
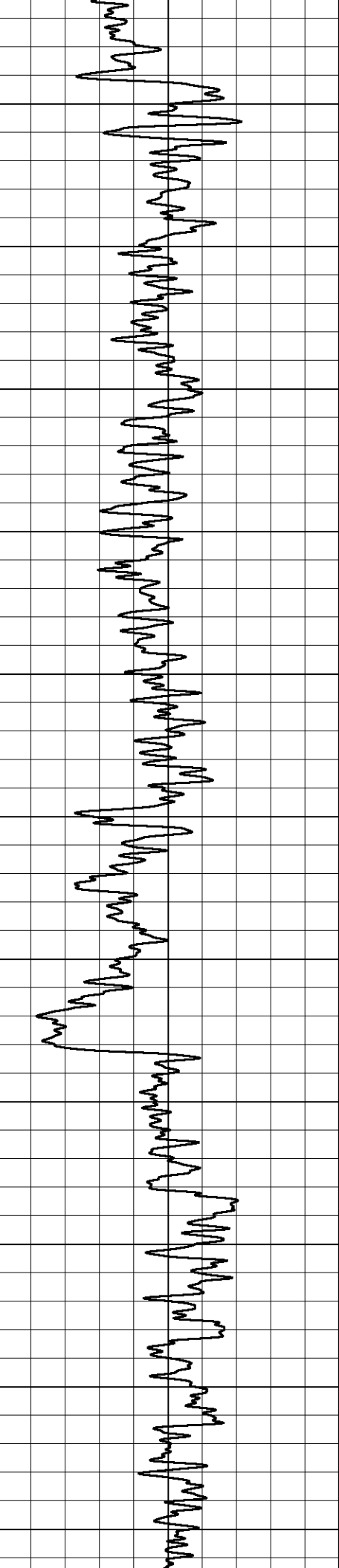
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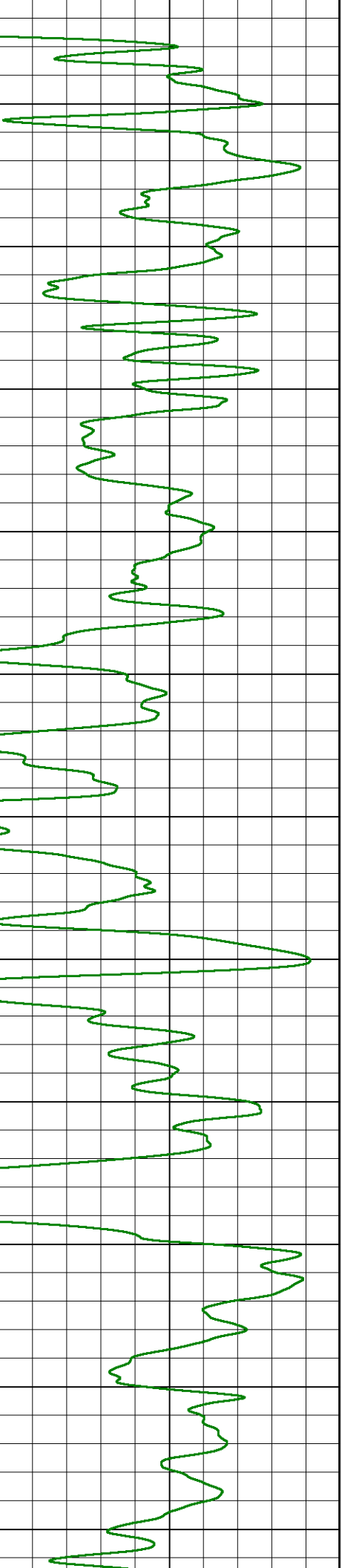
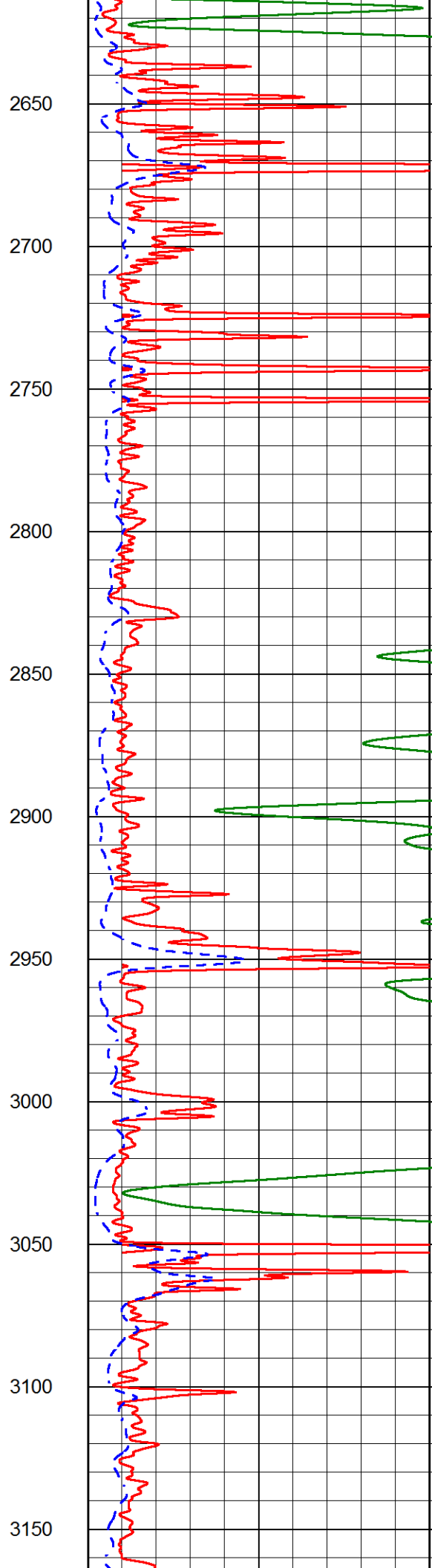
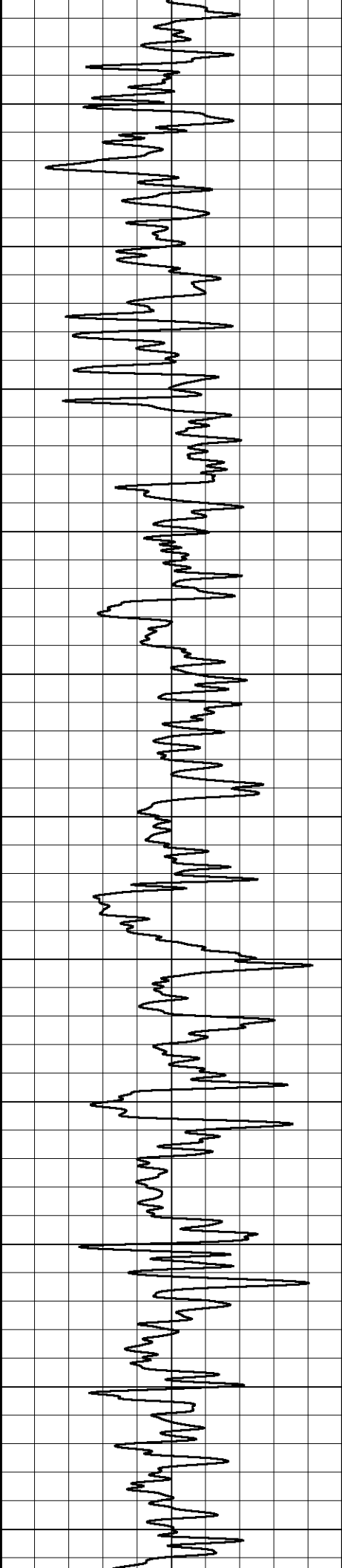
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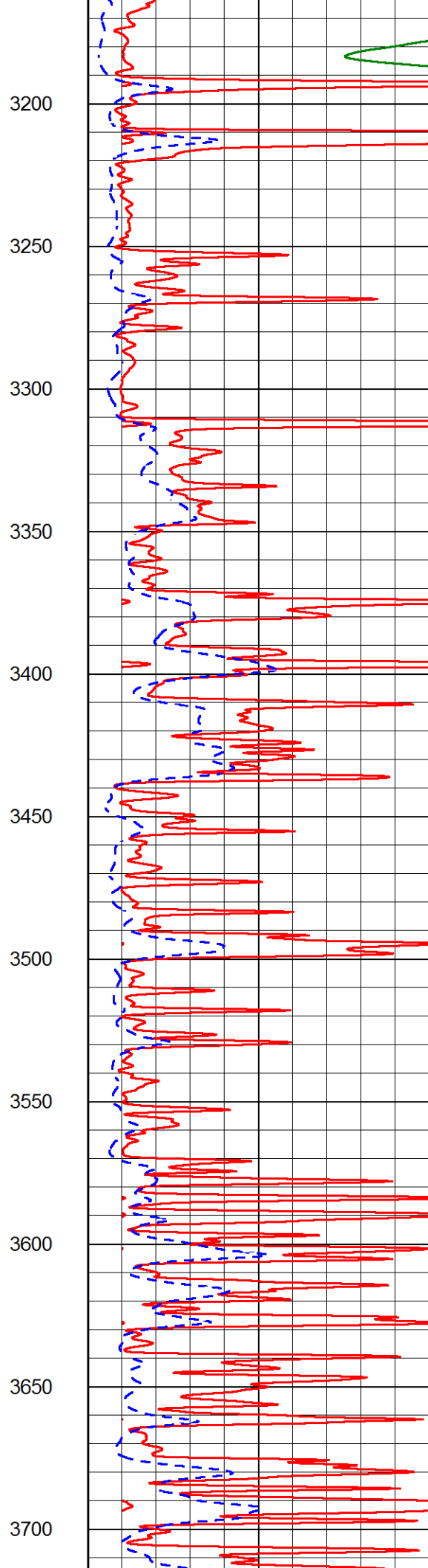
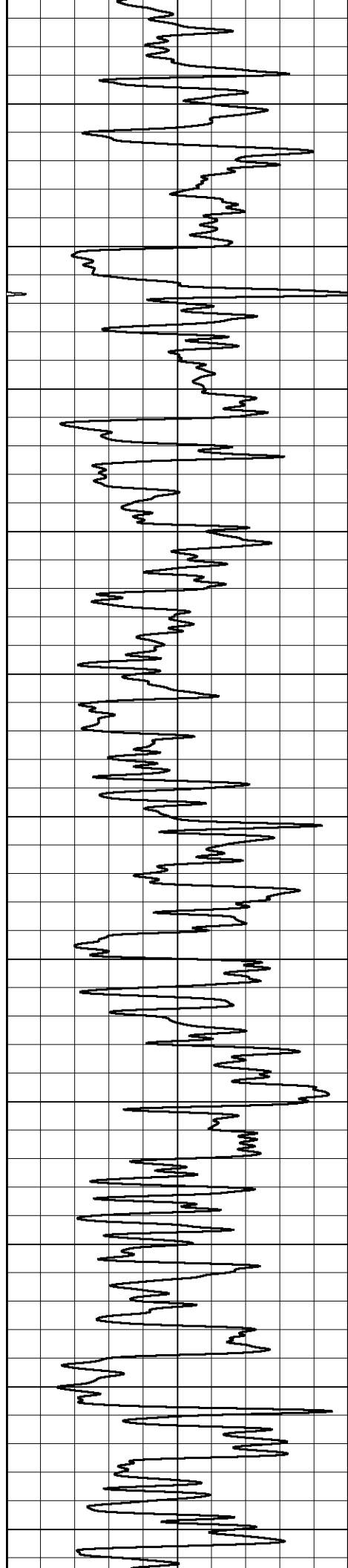
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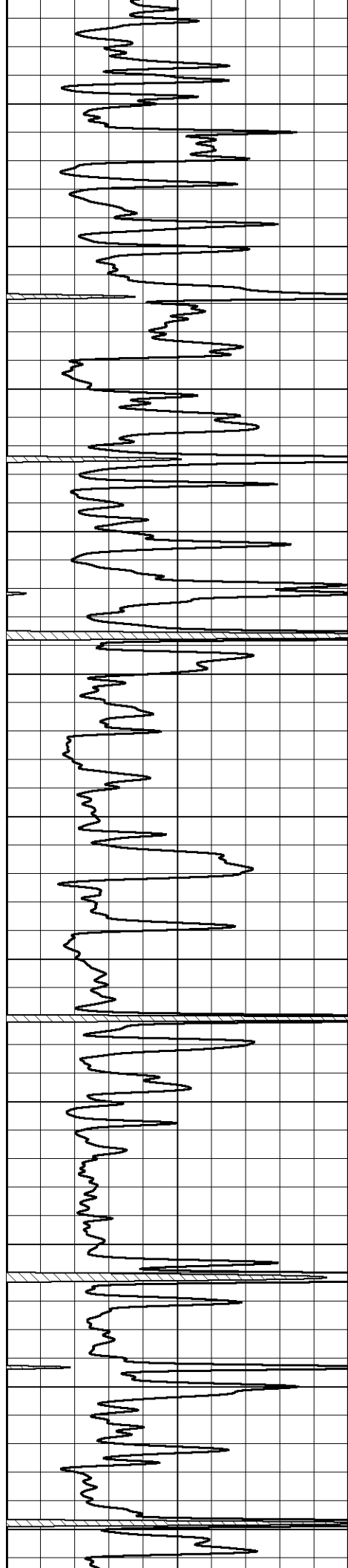












3750

3800

3850

3900

3950

4000

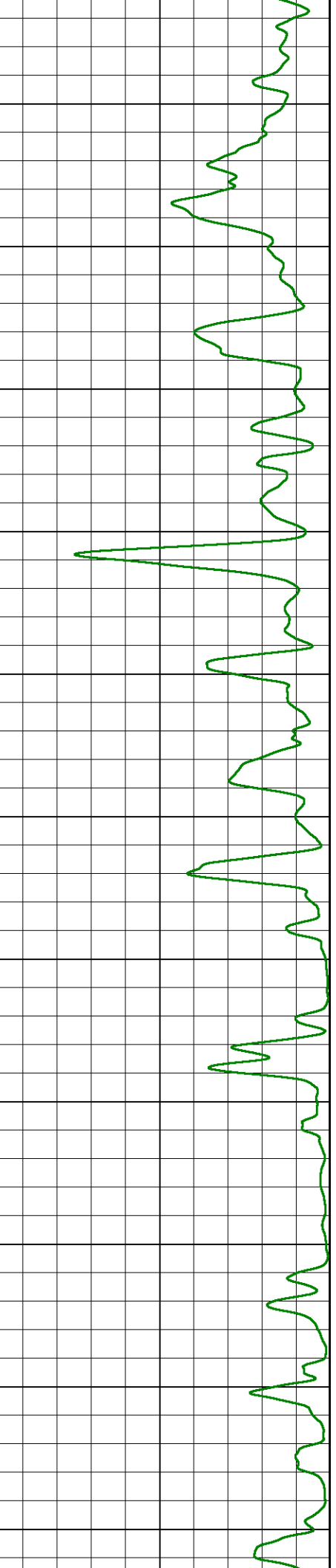
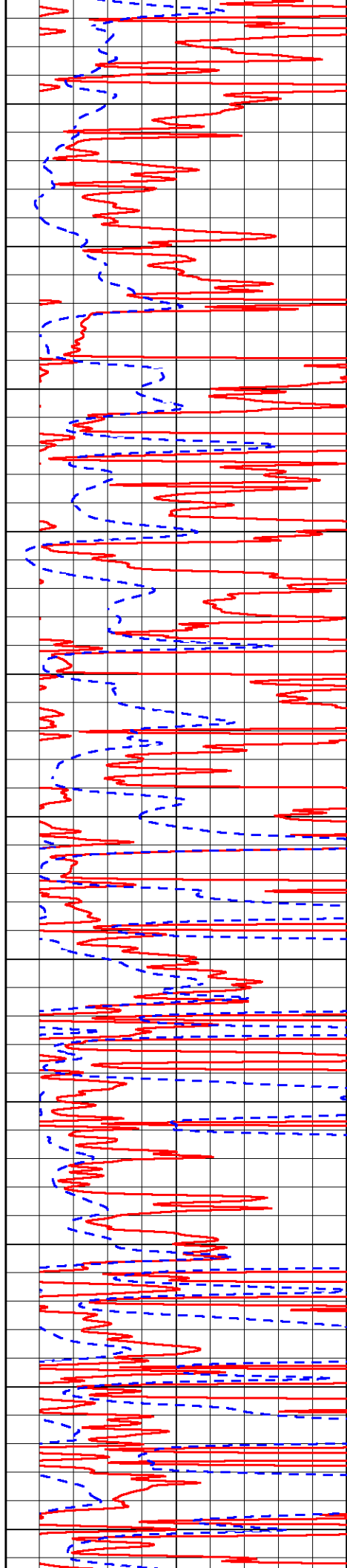
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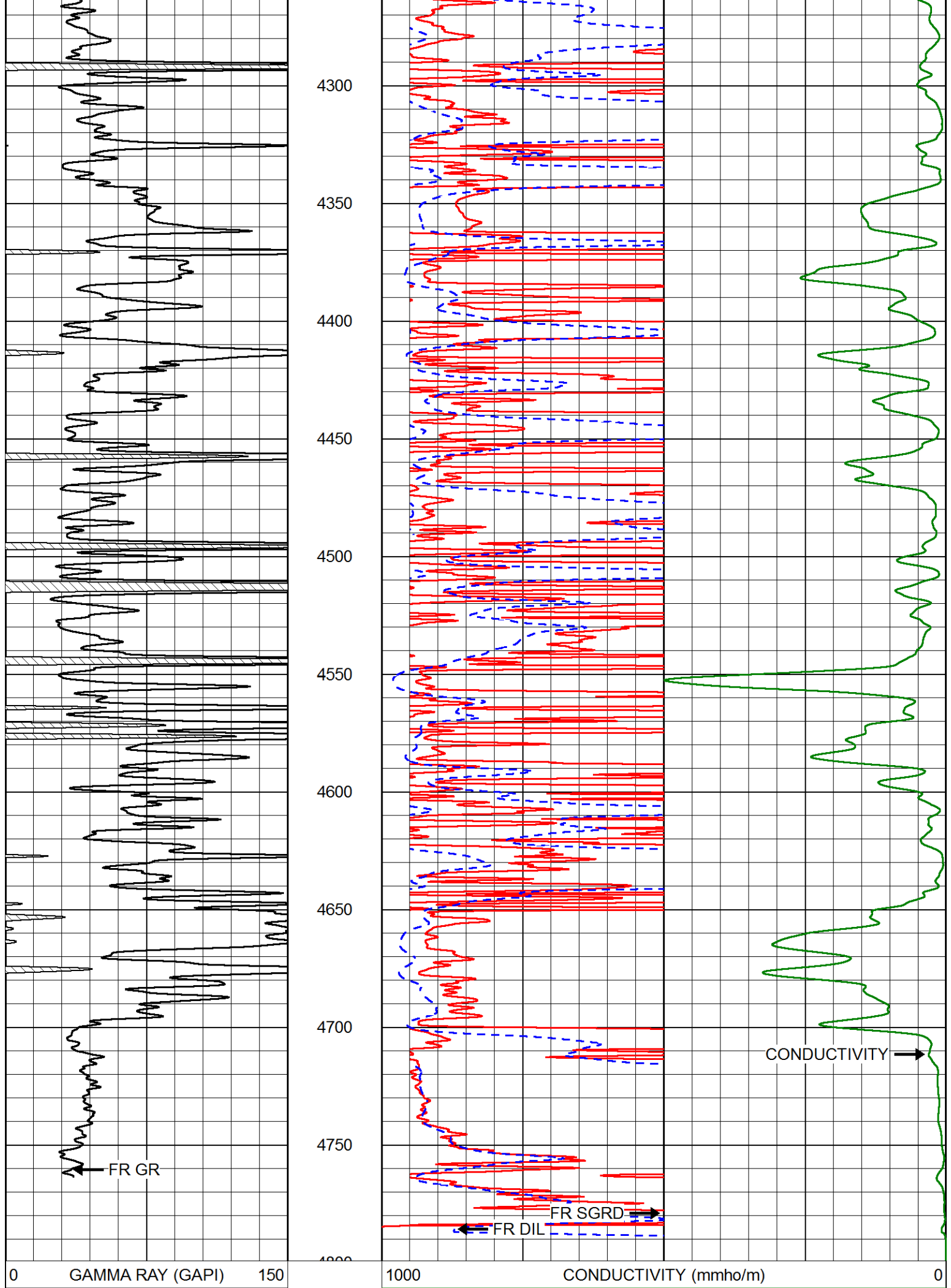
4100

4150

4200

4250





SHALLOW RESISTIVITY		
0	(Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
SHALLOW RESISTIVITY		
50	(Ohm-m)	500
DEEP RESISTIVITY		
50	(Ohm-m)	500



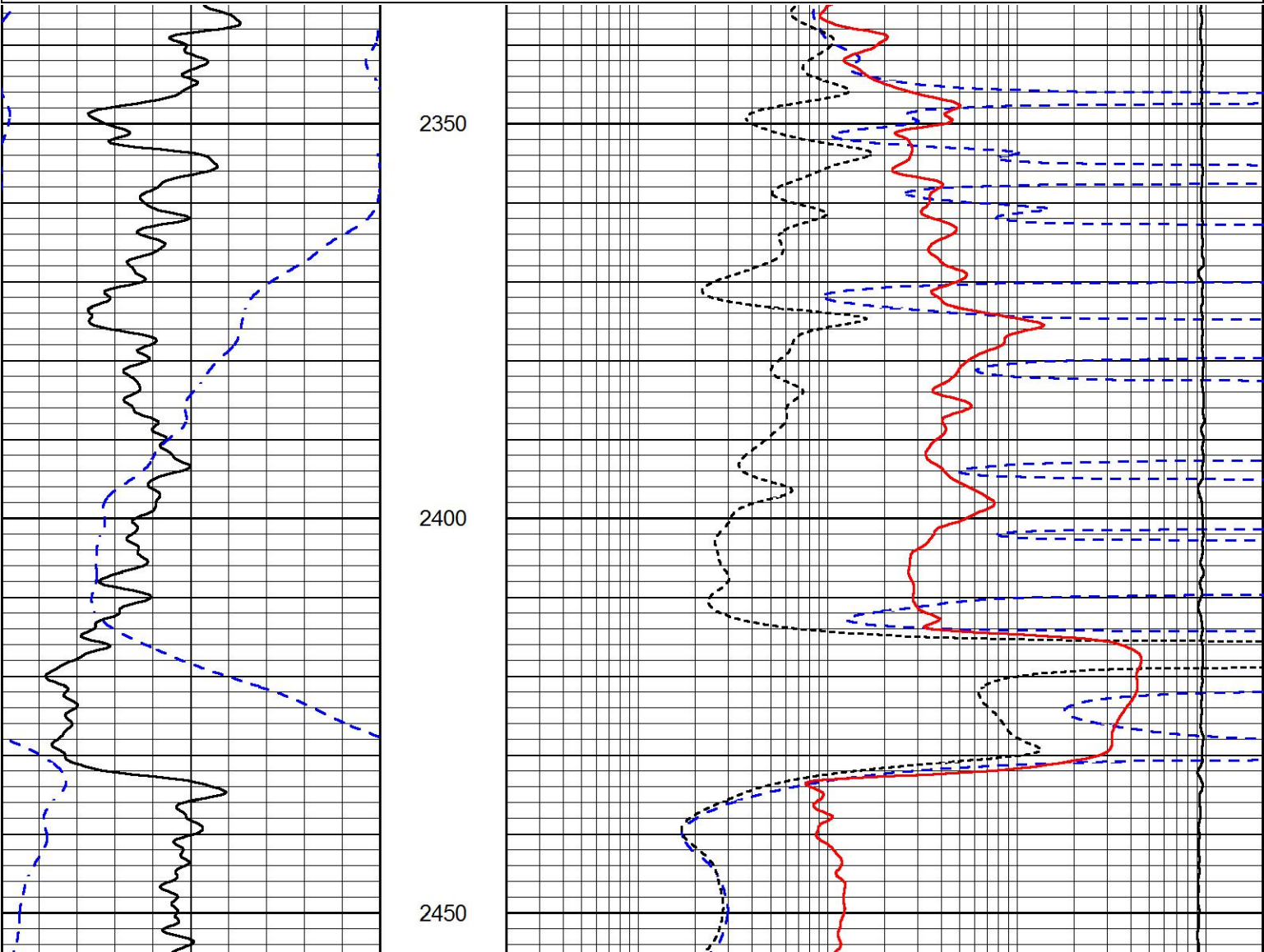
PIONEER
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ANHYDRITE SECTION

MAIN PASS

Database File	cobalt_binns a_#1-32.db
Dataset Pathname	stack/pass3.4
Presentation Format	dil
Dataset Creation	Sat Aug 27 19:43:09 2016
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	SHALLOW RESISTIVITY (Ohm-m)	2000
			15000	LINE TENSION (lb)	0



0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	SHALLOW RESISTIVITY (Ohm-m)	2000
15000	LINE TENSION (lb)	0

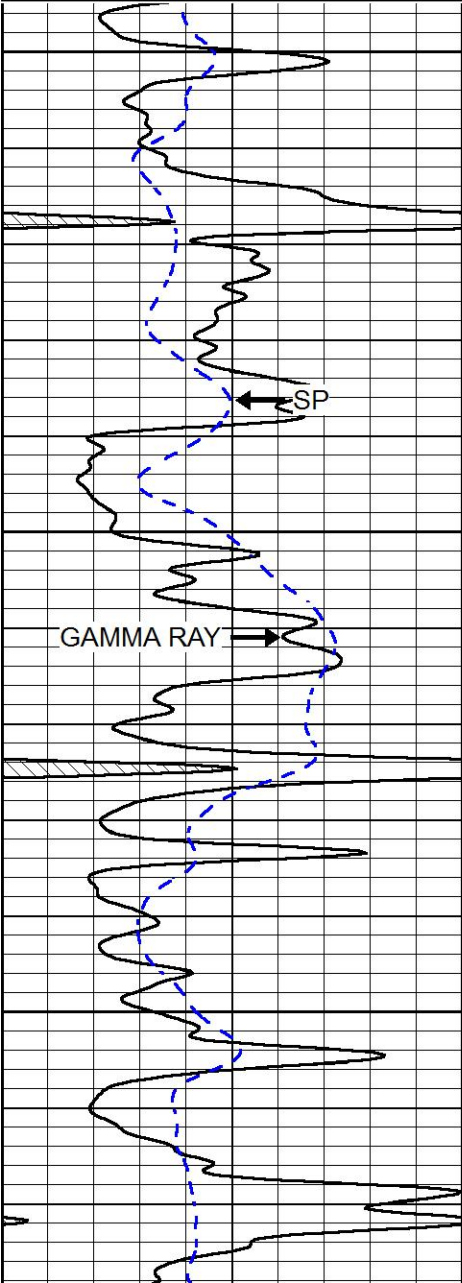


MAIN PASS

Database File	cobalt_binns a_#1-32.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil
Dataset Creation	Sat Aug 27 20:08:49 2016
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

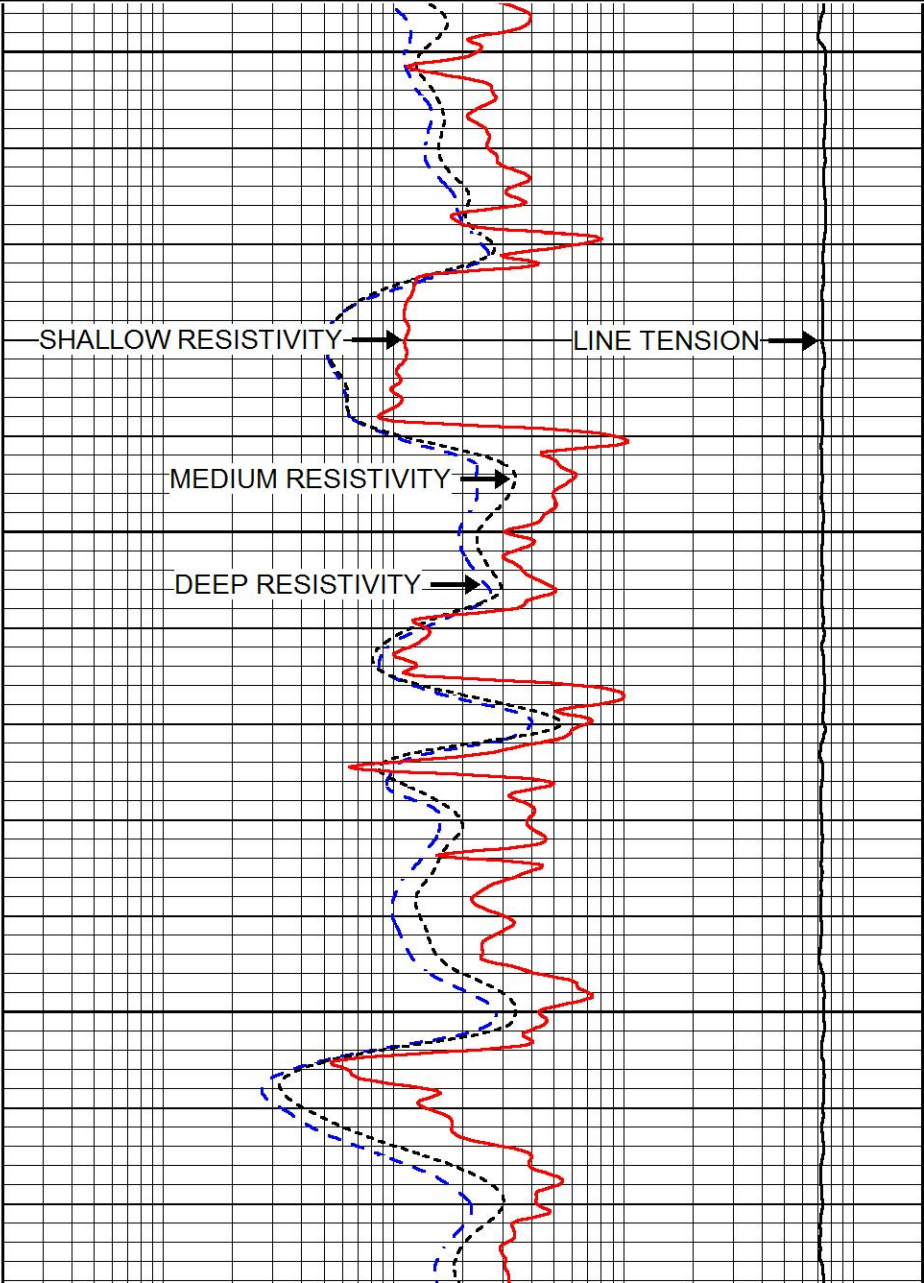
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	SHALLOW RESISTIVITY (Ohm-m)	2000
15000	LINE TENSION (lb)	0



3800

3850

3900

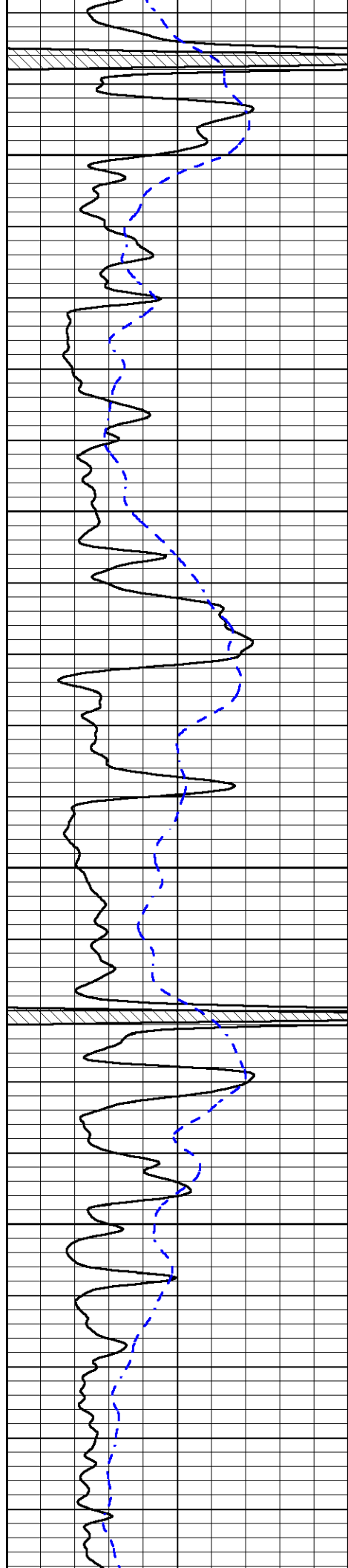


SHALLOW RESISTIVITY

LINE TENSION

MEDIUM RESISTIVITY

DEEP RESISTIVITY

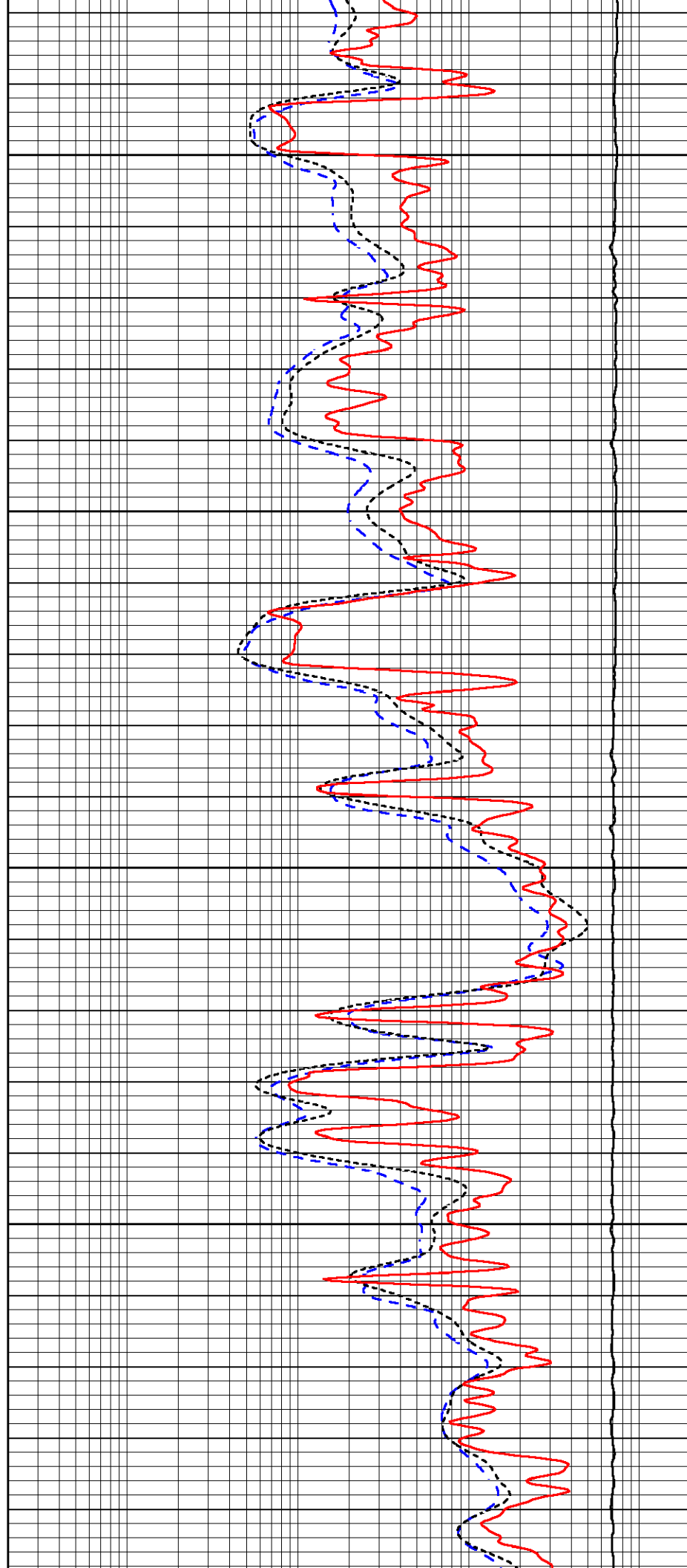


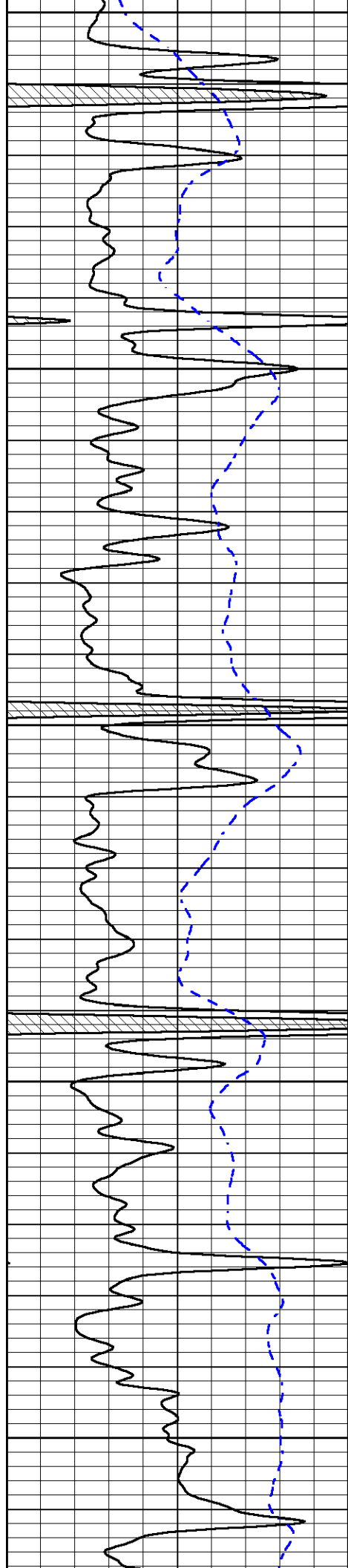
3950

4000

4050

4100





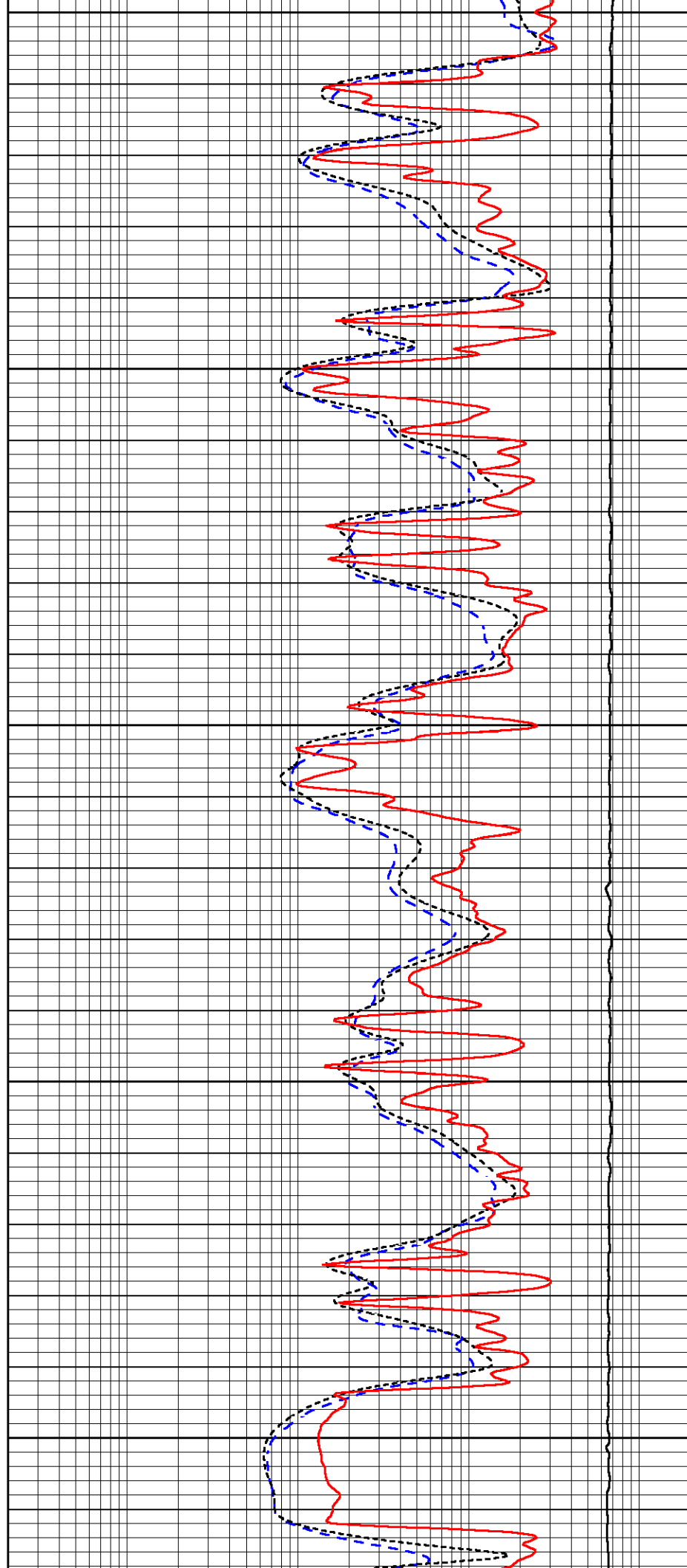
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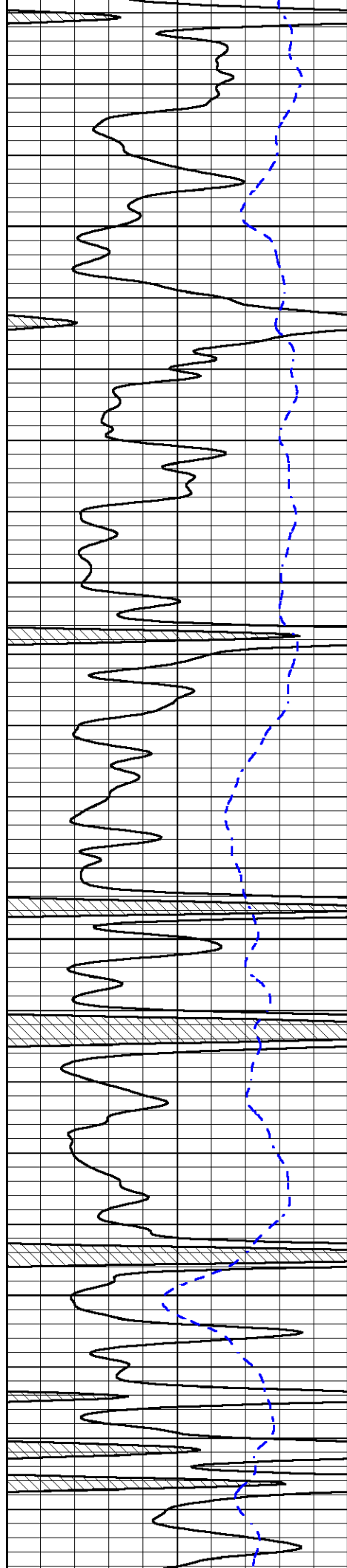
4200

4250

4300

4350



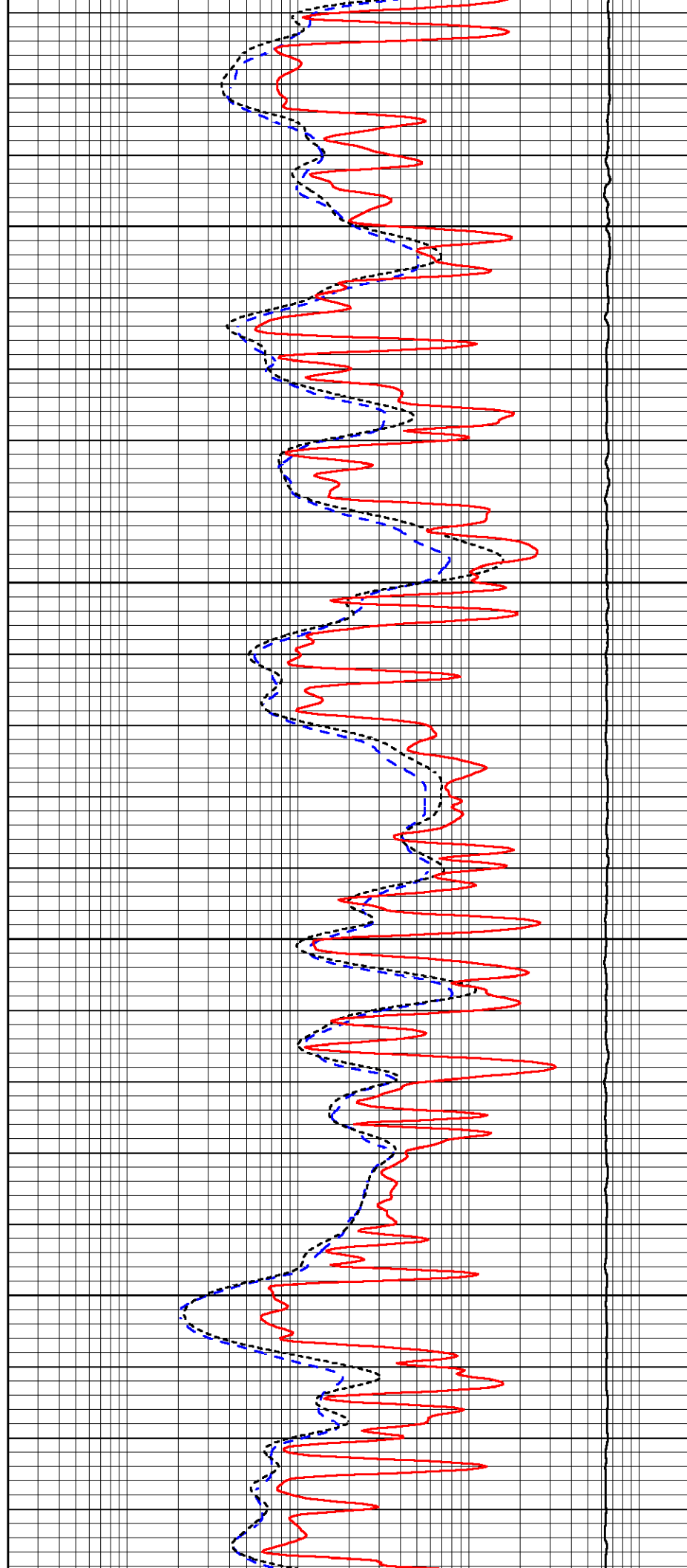


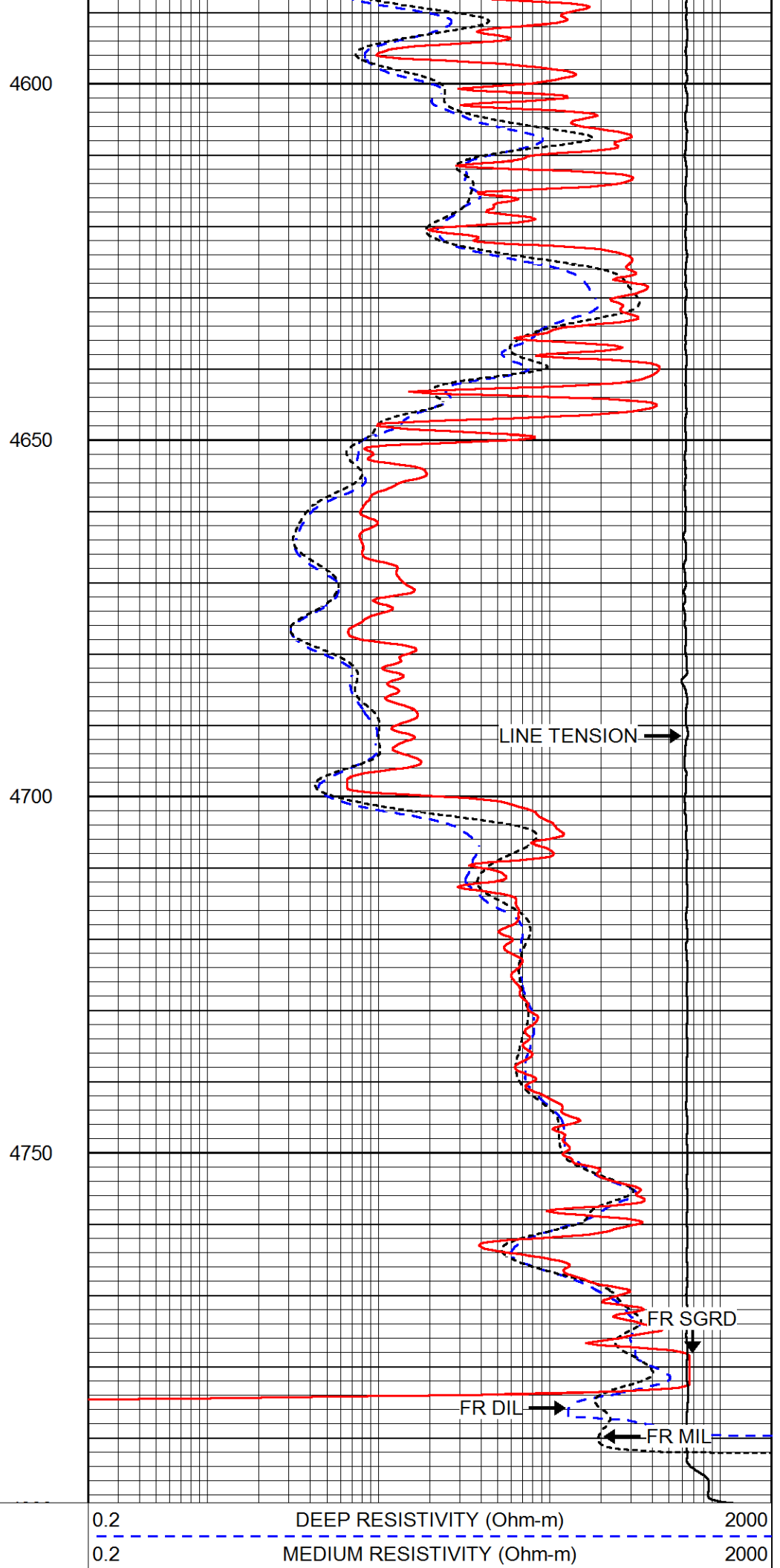
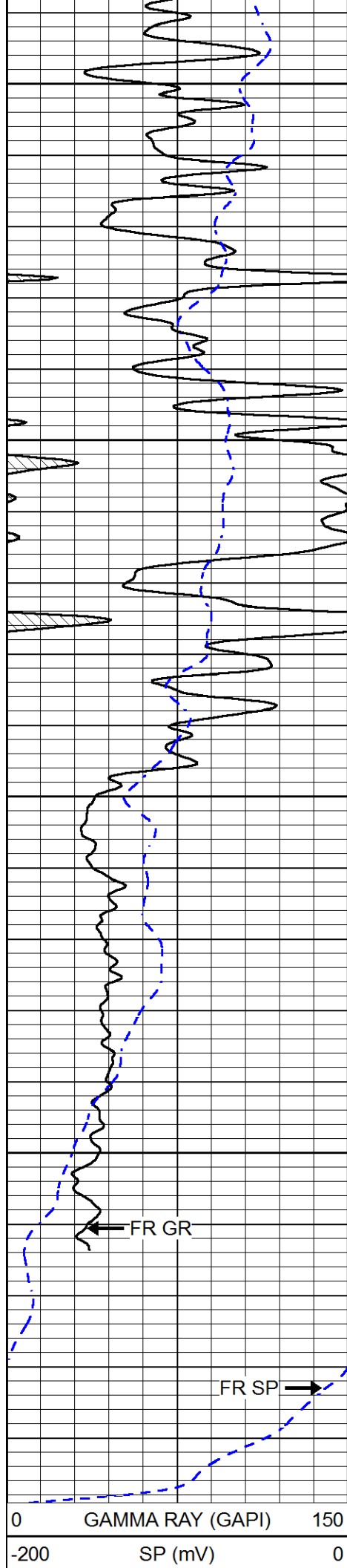
4400

4450

4500

4550





0.2	SHALLOW RESISTIVITY (Ohm-m)	2000
15000	LINE TENSION (lb)	0

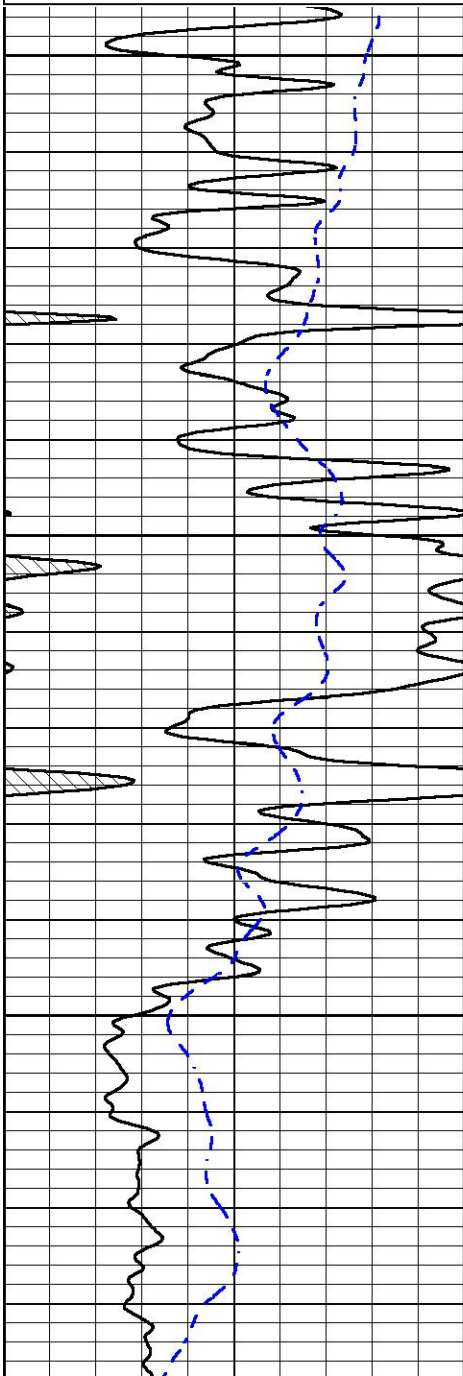


REPEAT SECTION

Database File cobalt_binns a_#1-32.db
 Dataset Pathname stack/pass2.1
 Presentation Format dil
 Dataset Creation Sat Aug 27 19:13:15 2016
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

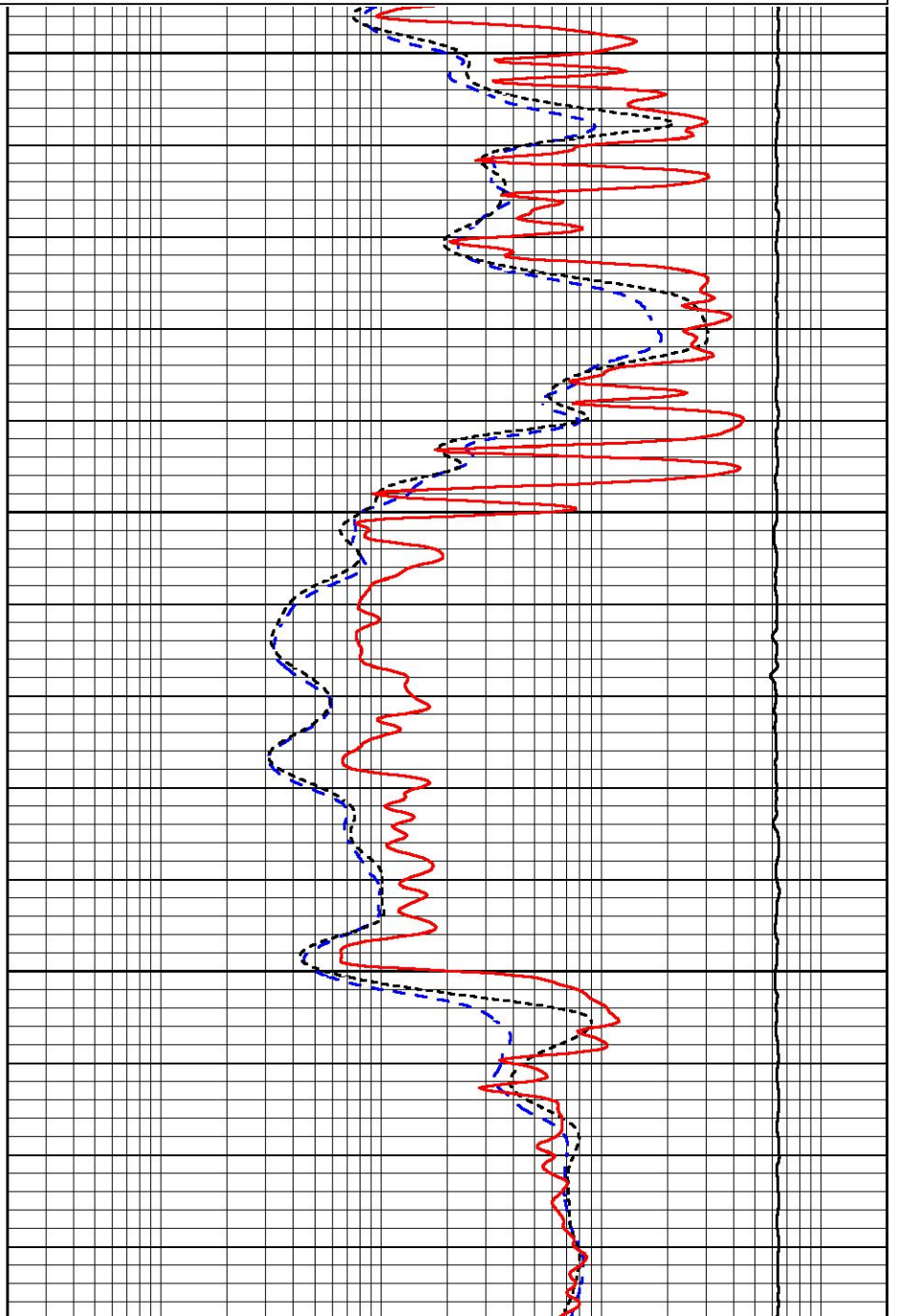
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	SHALLOW RESISTIVITY (Ohm-m)	2000
15000	LINE TENSION (lb)	0

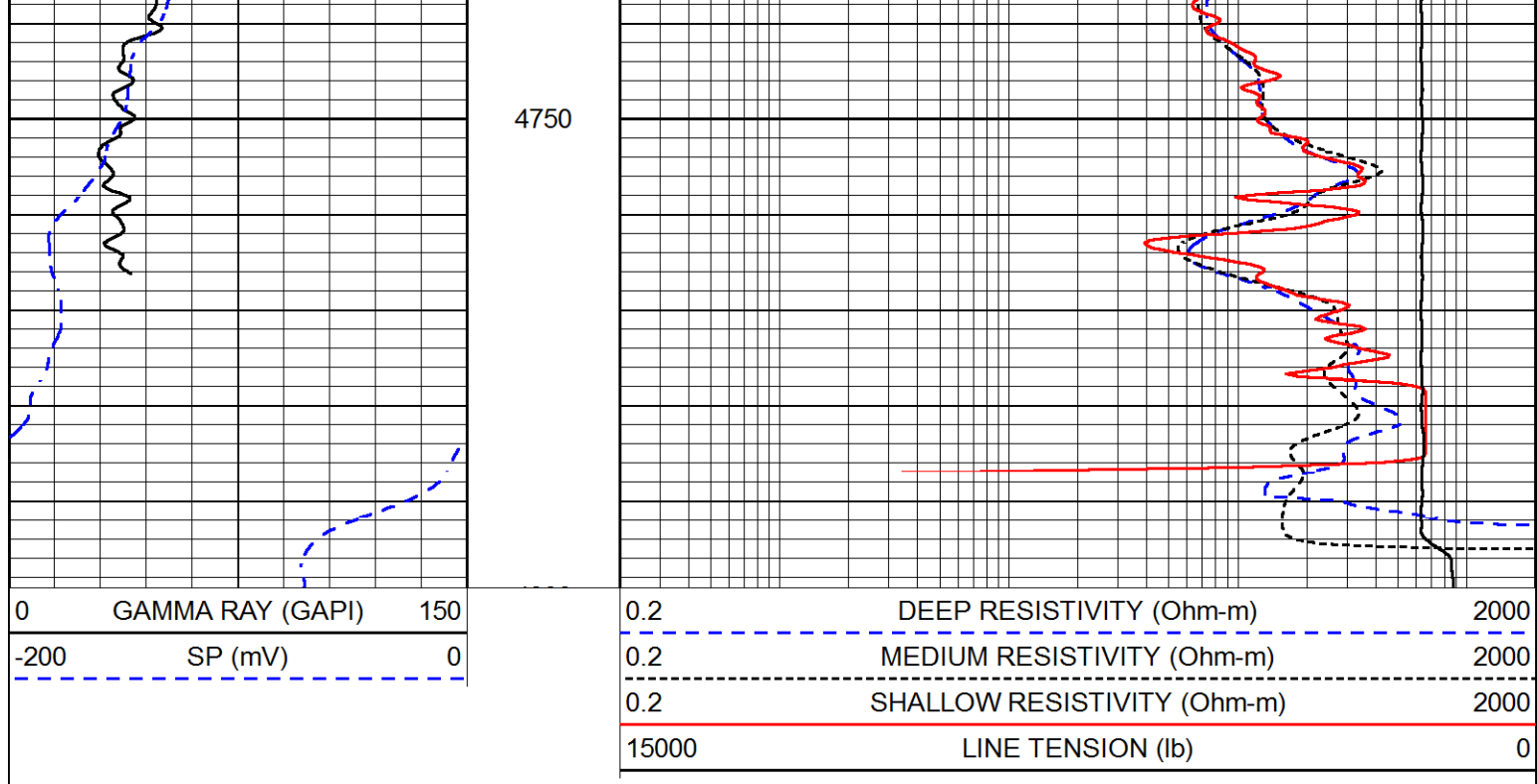


4600

4650

4700





Calibration Report

Database File cobalt_binns a_#1-32.db
 Dataset Pathname stack/pass3.1
 Dataset Creation Sat Aug 27 20:08:49 2016

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Fri Jul 22 02:17:58 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-38.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-113.000

Compensated Density Calibration Report

Serial-Model: 71-914-M&W
 Source / Verifier: /
 Master Calibration Performed: Thu Jul 28 15:08:02 2016

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4314.49	5307.52	cps
Aluminum	2.670	g/cc	822.19	3456.36	cps
Spine Angle = 75.49			Density/Spine Ratio = 0.534		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	14.00	in	1.57		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed July 20 08:04:05 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: Sun Jul 17 19:05:06 2016

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



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