



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **COBALT ENERGY, LLC**
Well **SLIPKE TRUST A NO. 1-24**
Field **VAHLING**
County **SHERIDAN** State **KANSAS**

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Location: API #: 15-179-21453-00-00
1570' FSL & 995' FWL
39.513348636
-100.17729072
SEC 24 TWP 6S RGE 26W
Permanent Datum **GROUND LEVEL** Elevation **2610'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Other Services
CNL/CDL
MEL
Elevation
K.B. 2615'
D.F. N/A
G.L. 2610'

Date	8/31/2018
Run Number	ONE
Depth Driller	3930'
Depth Logger	3930'
Bottom Logged Interval	3929'
Top Log Interval	300'
Casing Driller	8.625" @ 345'
Casing Logger	349'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	1300
Density / Viscosity	9.1 54
pH / Fluid Loss	10.5 6.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80 @ 68
Rmt @ Meas. Temp	.60 @ 68
Rmc @ Meas. Temp	1.08 @ 68
Source of Rmt / Rmc	CHARTS
Rm @ BHT	.47 @ 115
Operating Rig Time	2 HOURS
Max Rec. Temp. F	115 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	LARRY NICHOLSON

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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.
STUDLEY KANSAS
NORTH TO AA ROAD, 1 WEST, 1/2 NORTH, EAST INTO

Log Measured From: **KELLY BUSHING** 5 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: **LARRY NICHOLSON**
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 115	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 20	mmho/m 0	mV -340	degF 65	Off	ft 3930

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC	37.48			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD	28.43			CDL-M&W (126-186)	8.50	4.00	250.00
DCAL	28.42			ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
SSD	27.93						
MCAL	19.83						
MI	19.83						
MN	19.83						
RLL3	15.80						
RLL3F	15.79						
CILD	8.00			DIL-M&W (1987)	18.50	3.50	220.00

CILM	4.70								
SP	0.20								
Dataset: cobalt_slipke_trust_a_1_24.db: field/well/stackml/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in									

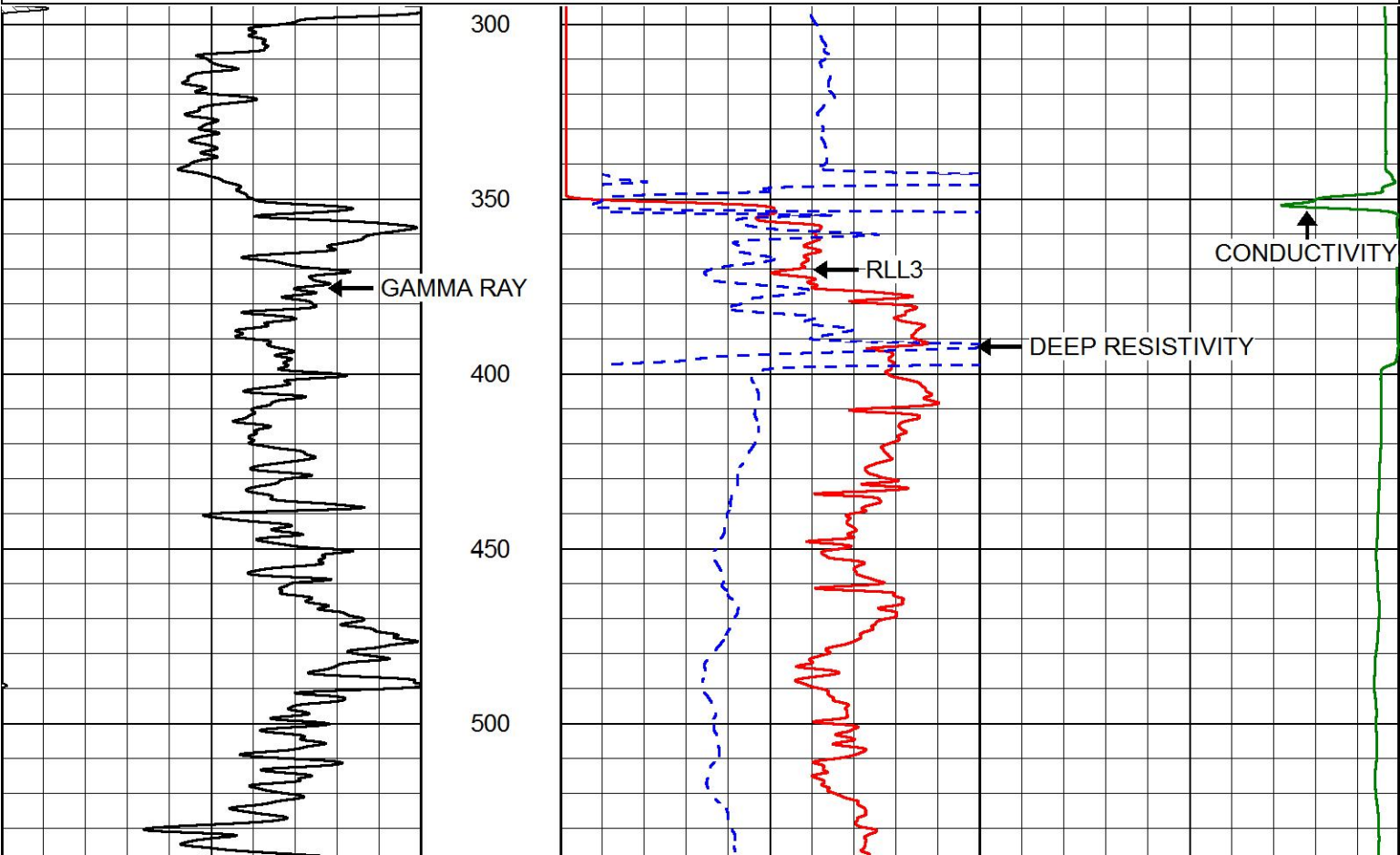


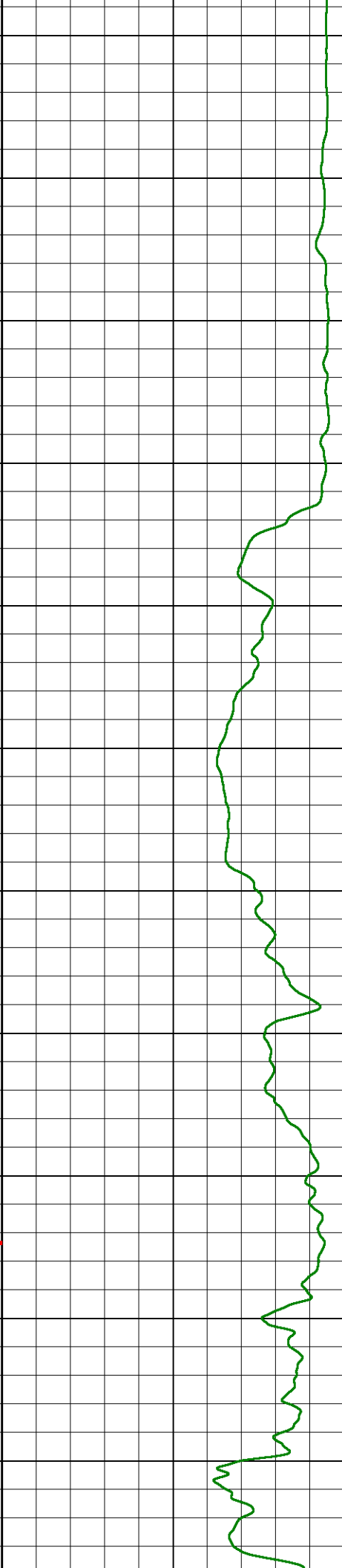
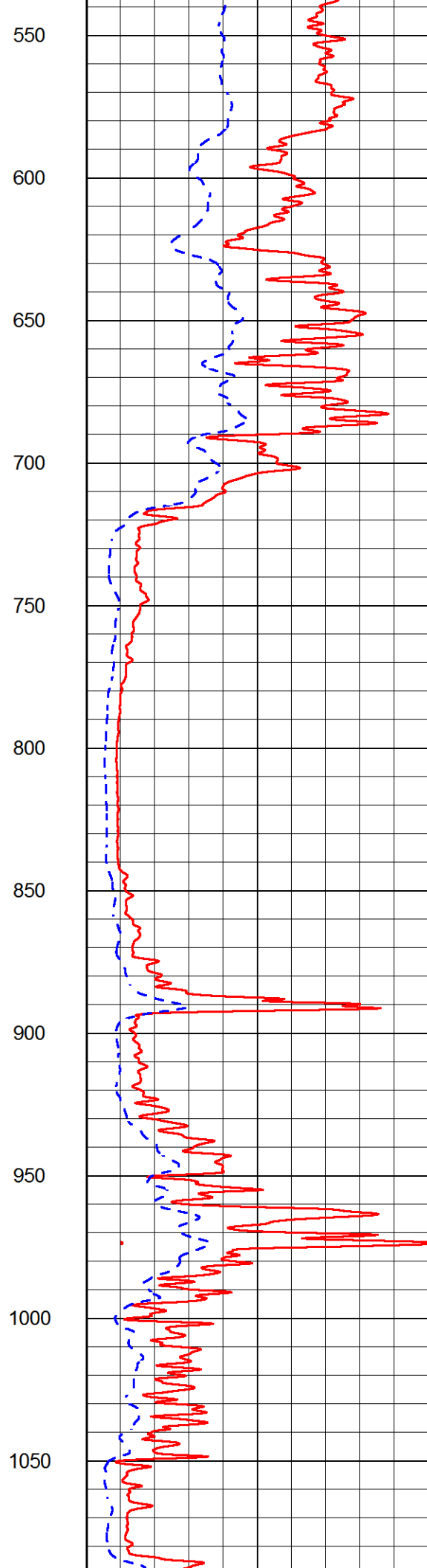
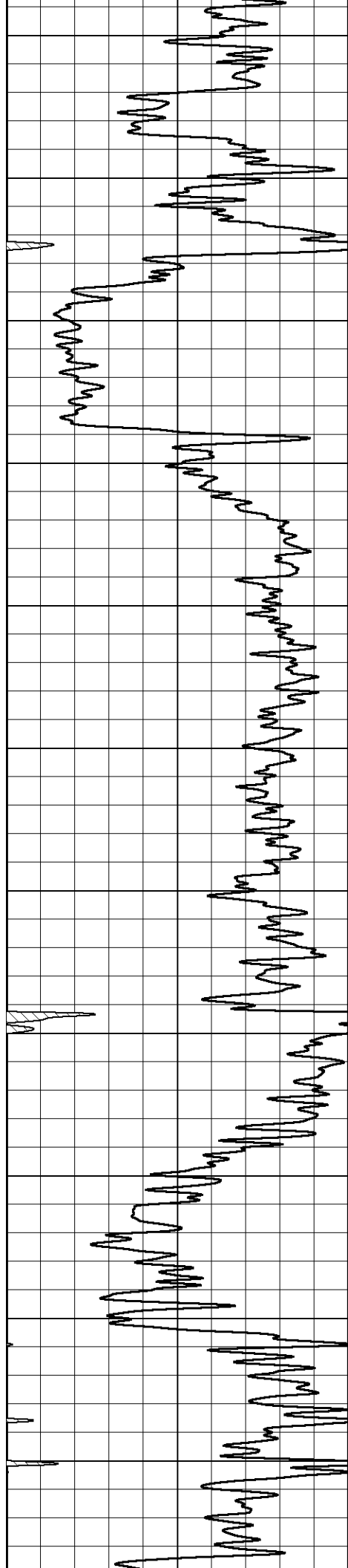
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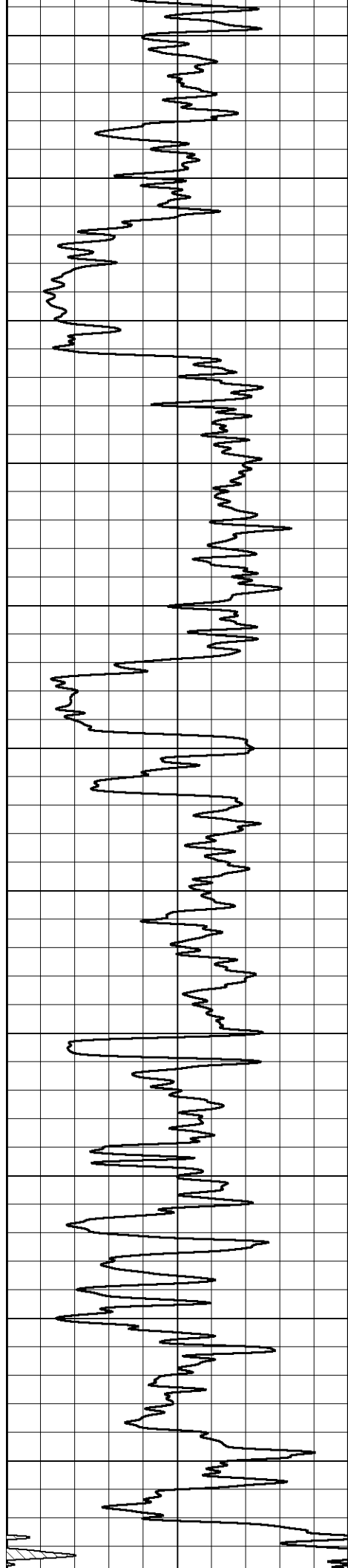
MAIN PASS

Database File	cobalt_slipke_trust_a_1_24.db
Dataset Pathname	stackml/pass3.1
Presentation Format	dil2in
Dataset Creation	Fri Aug 31 04:09:05 2018
Charted by	Depth in Feet scaled 1:600

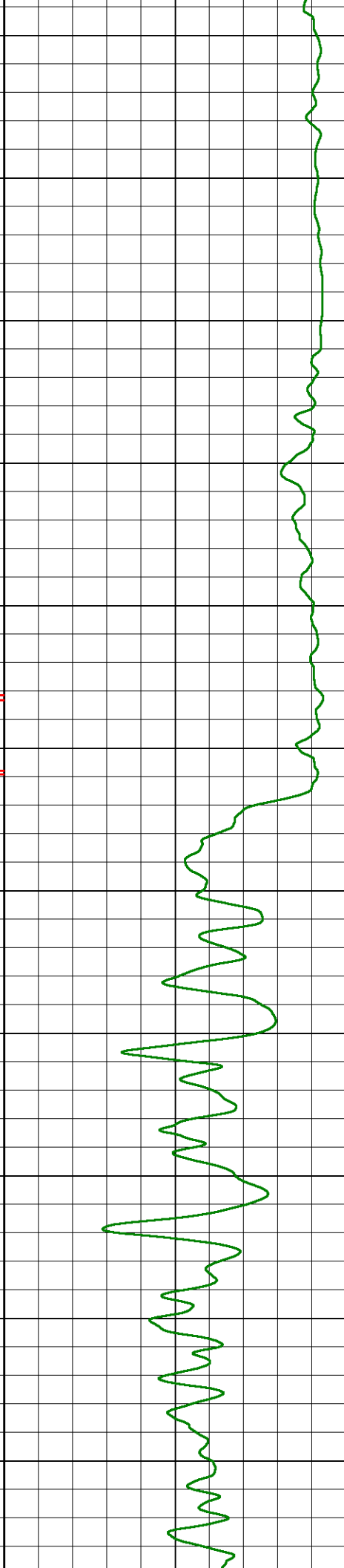
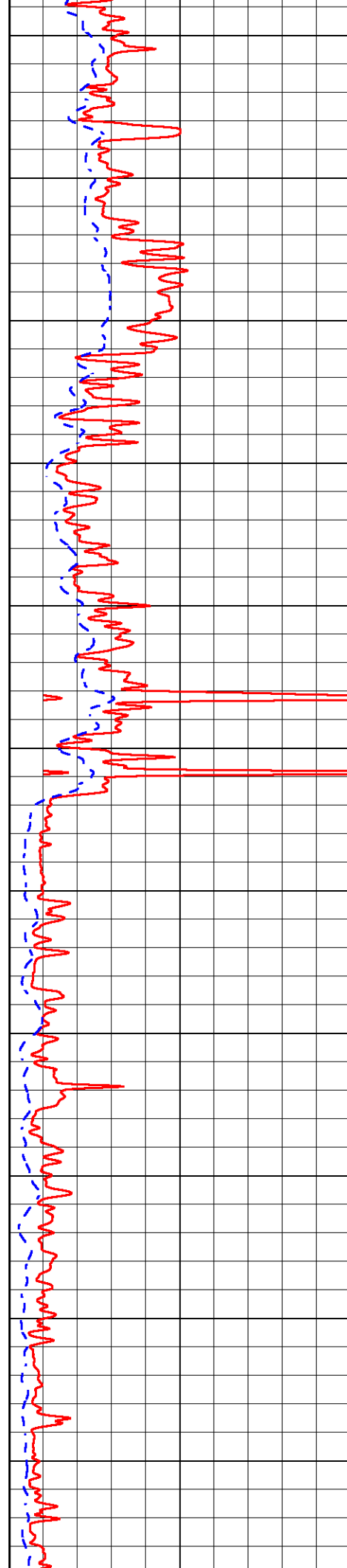
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			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500

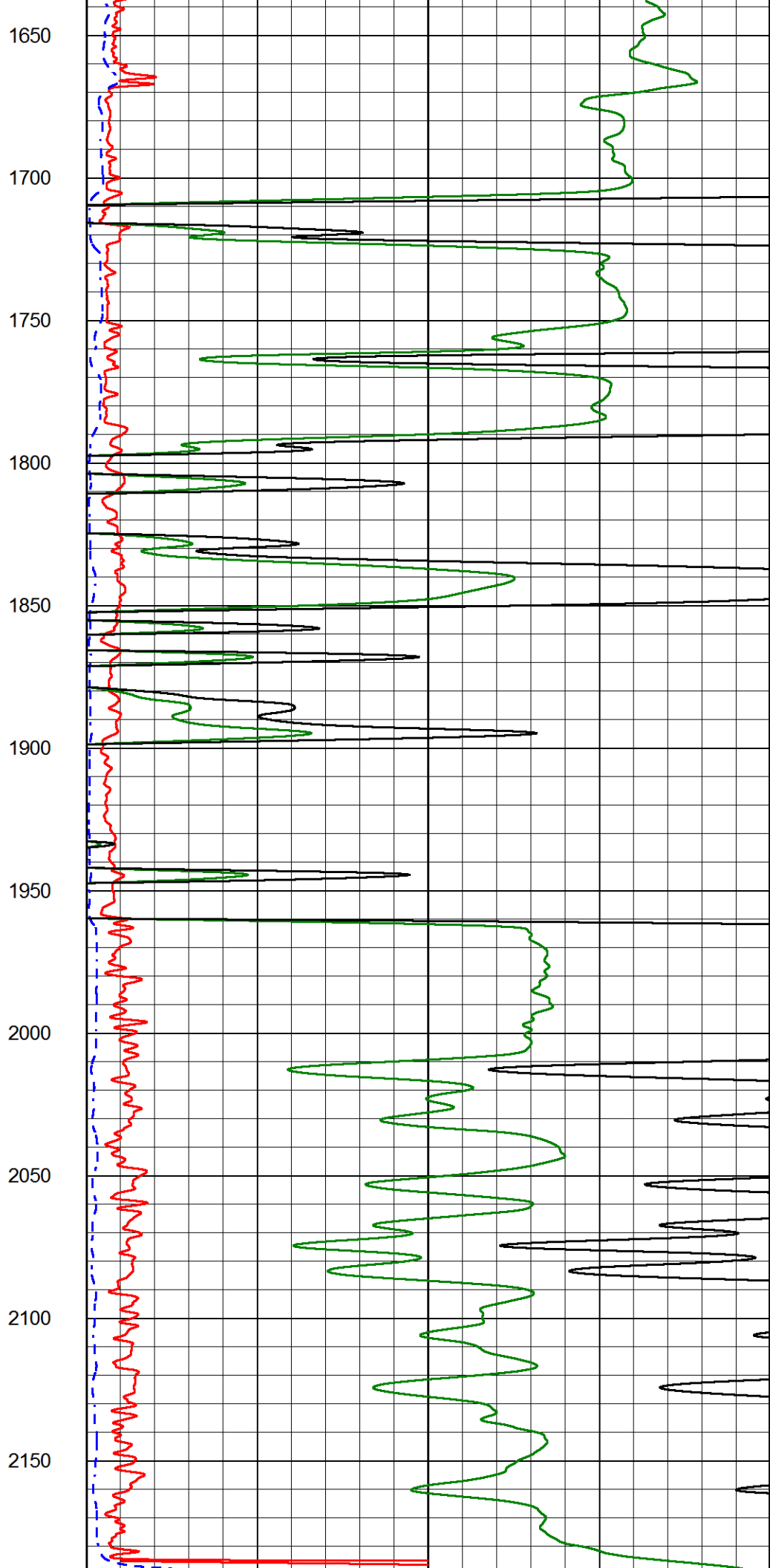
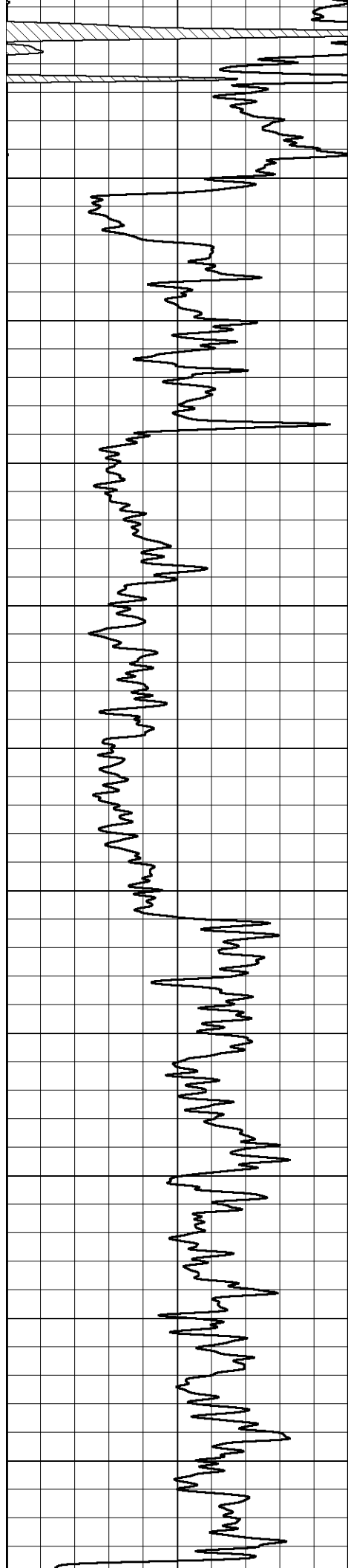


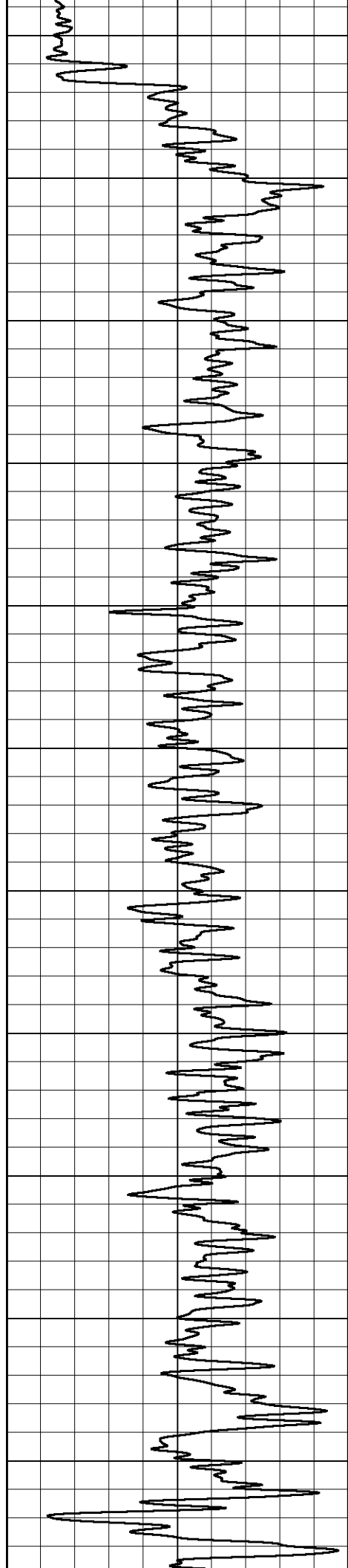




1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600







2200

2250

2300

2350

2400

2450

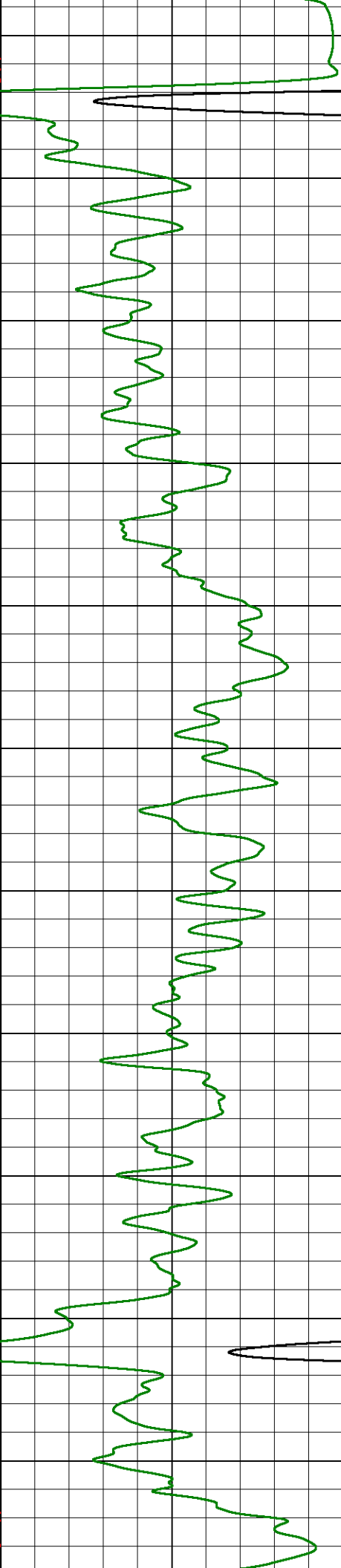
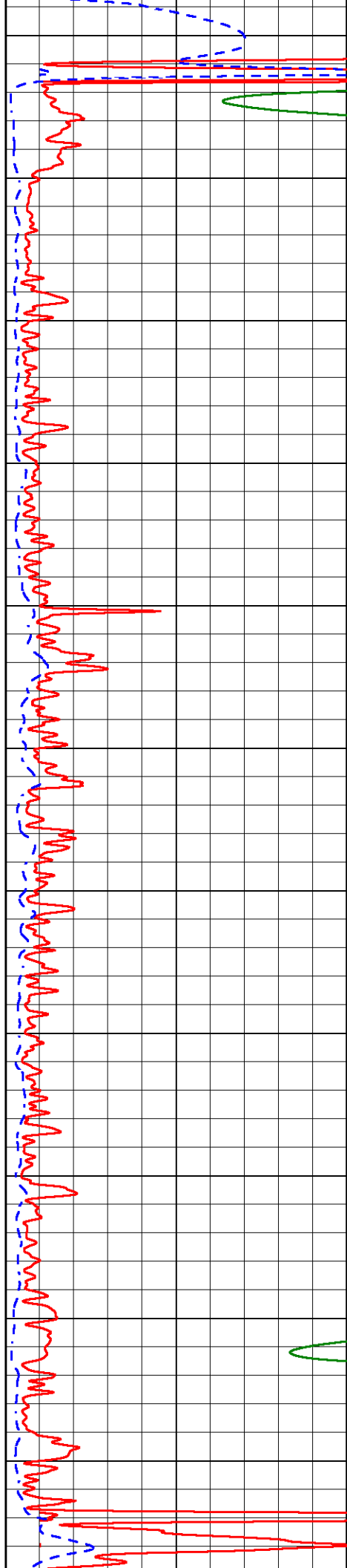
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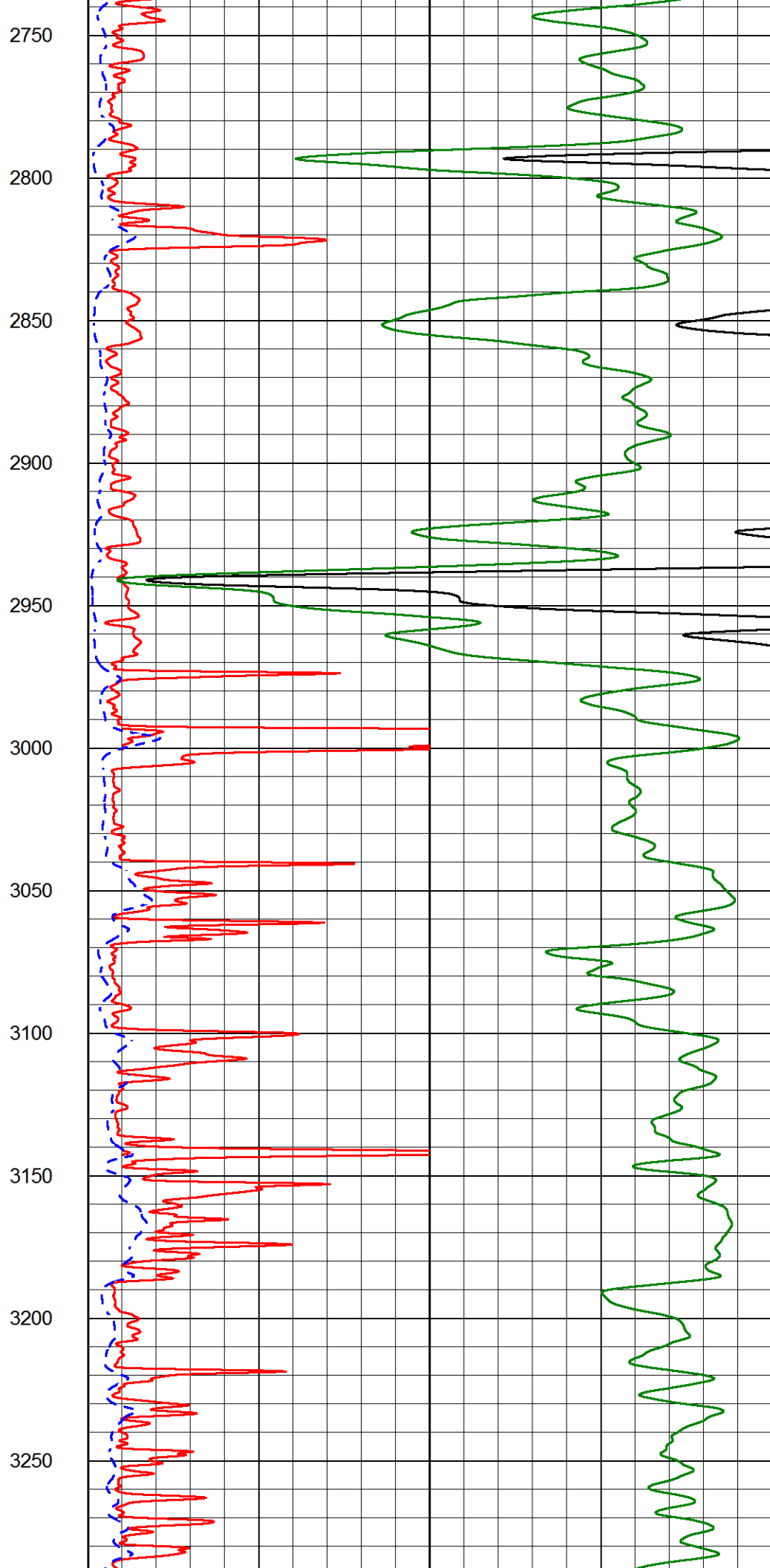
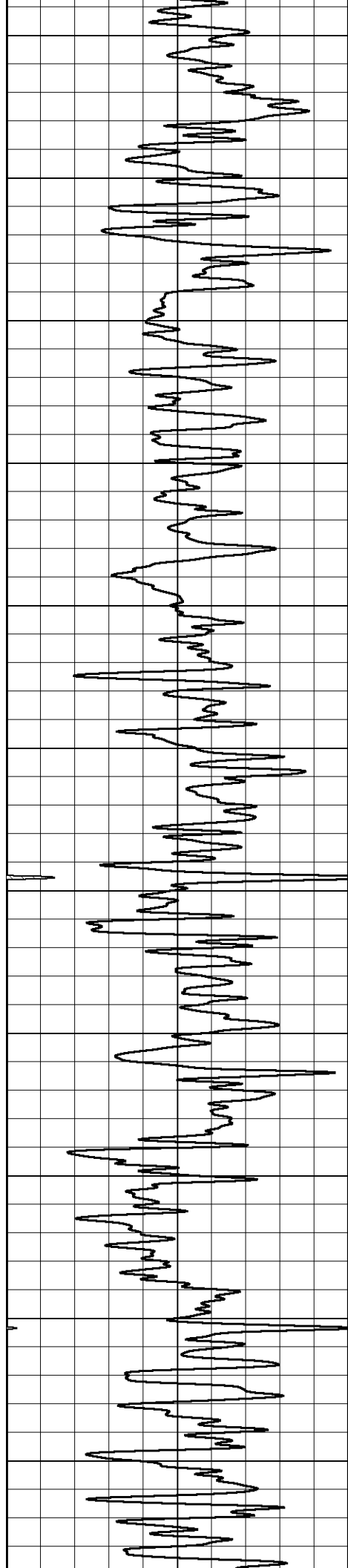
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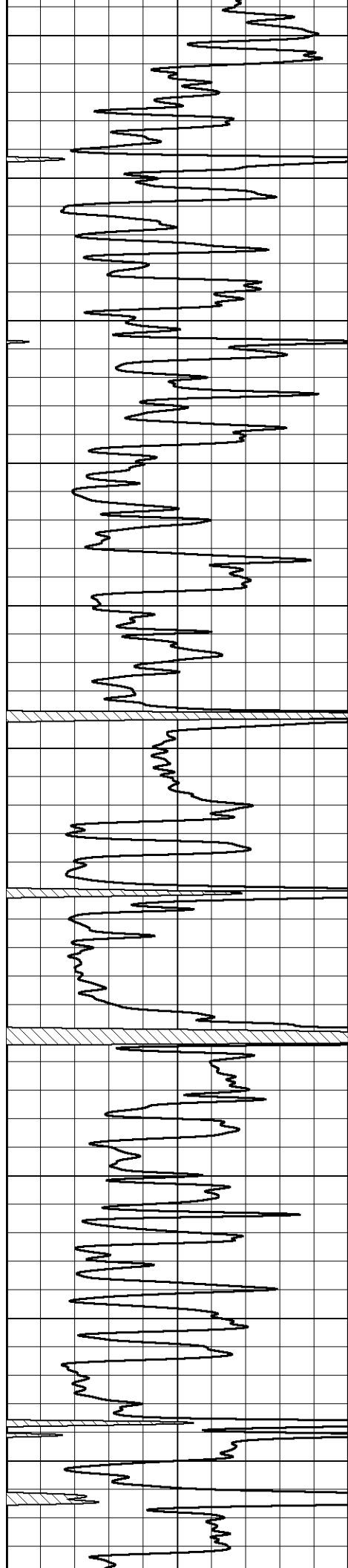
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2650

2700







3300

3350

3400

3450

3500

3550

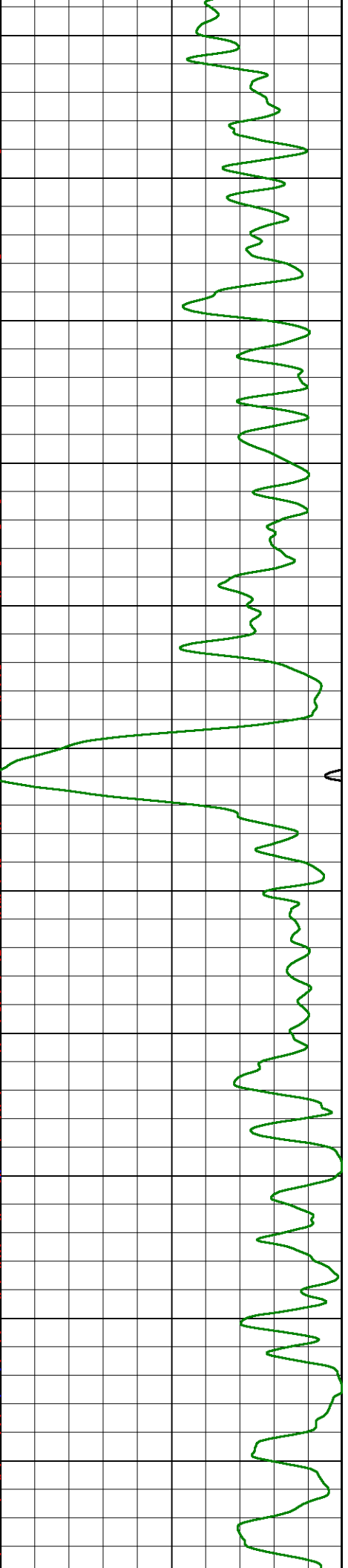
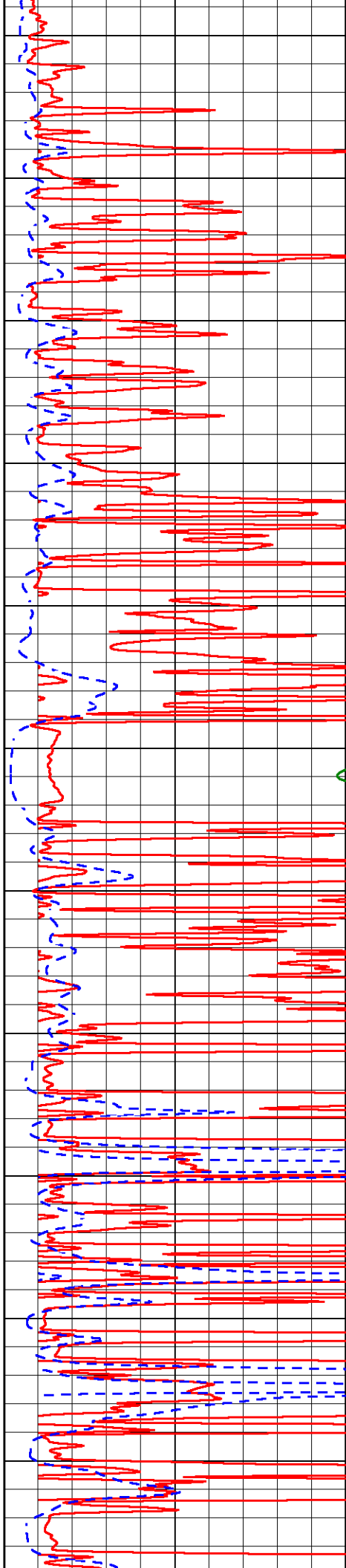
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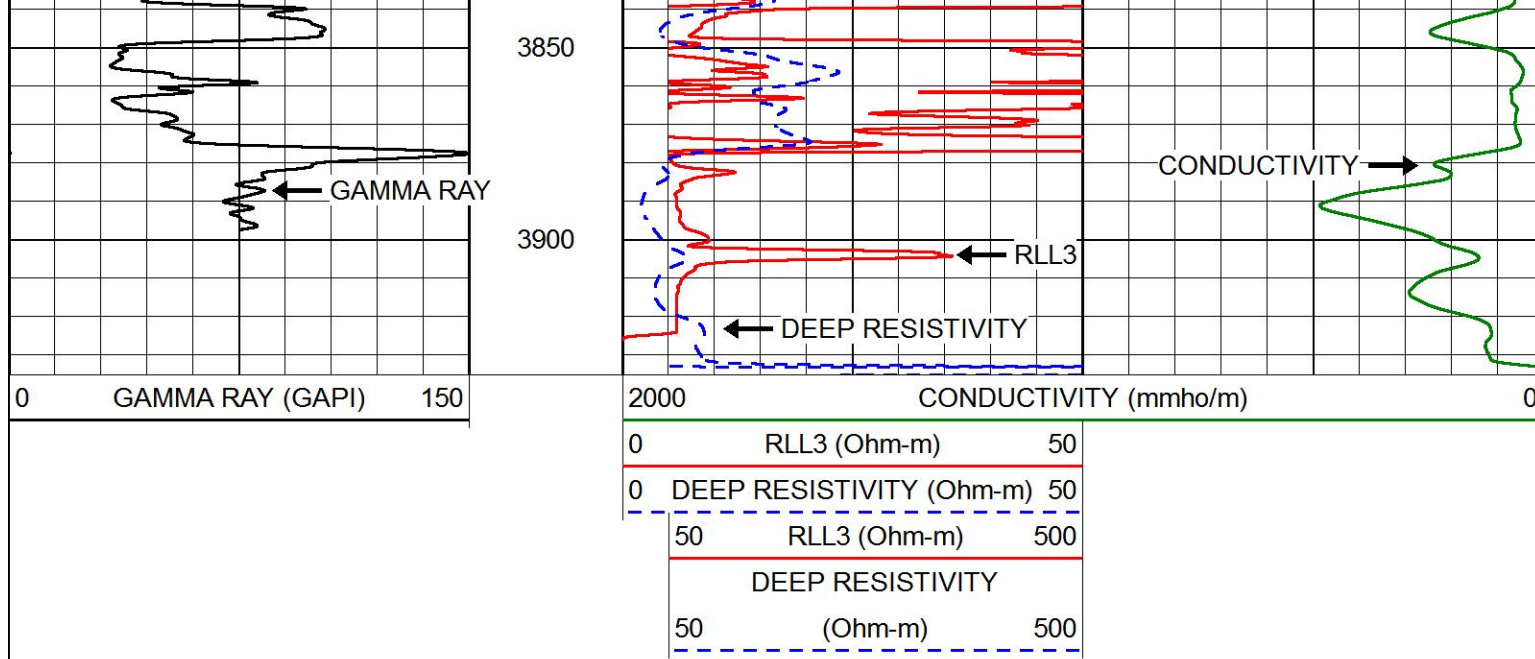
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3700

3750

3800

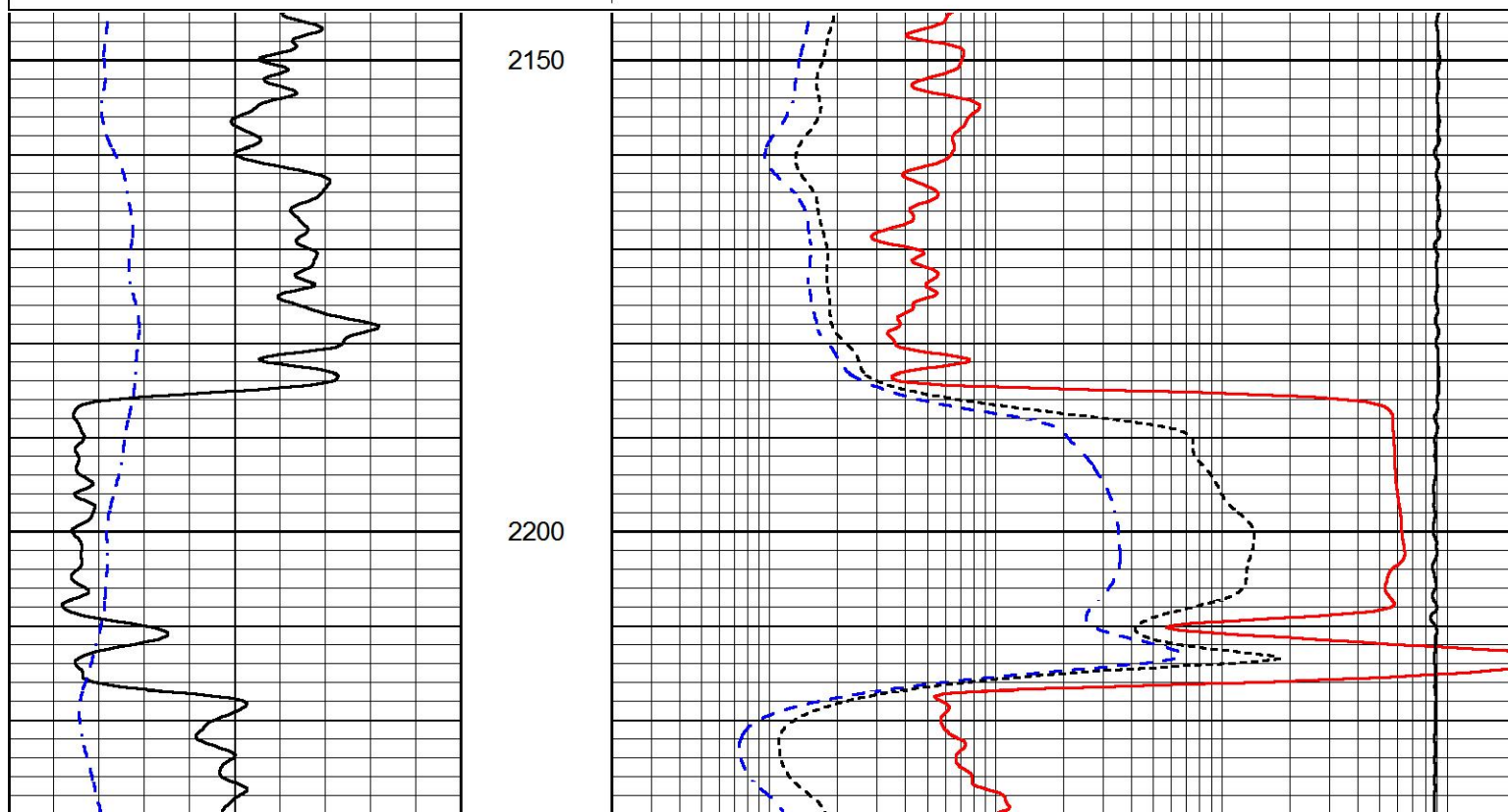


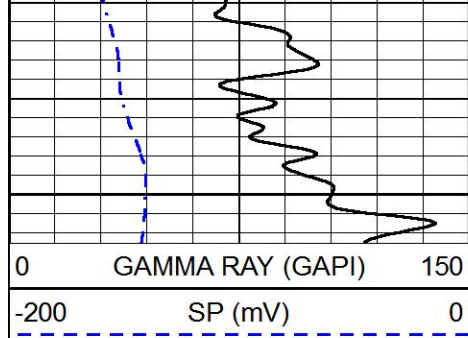


MAIN PASS

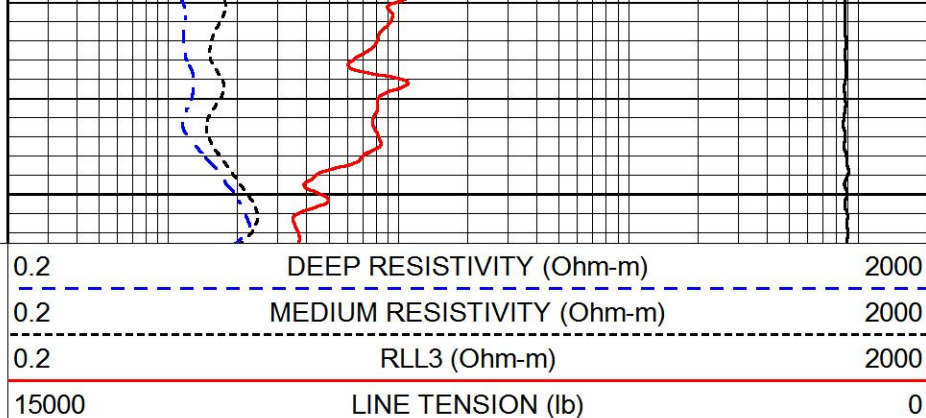
Database File cobalt_slipke_trust_a_1_24.db
 Dataset Pathname stackml/pass3.1
 Presentation Format dil
 Dataset Creation Fri Aug 31 04:09:05 2018
 Charted by Depth in Feet scaled 1:240

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	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



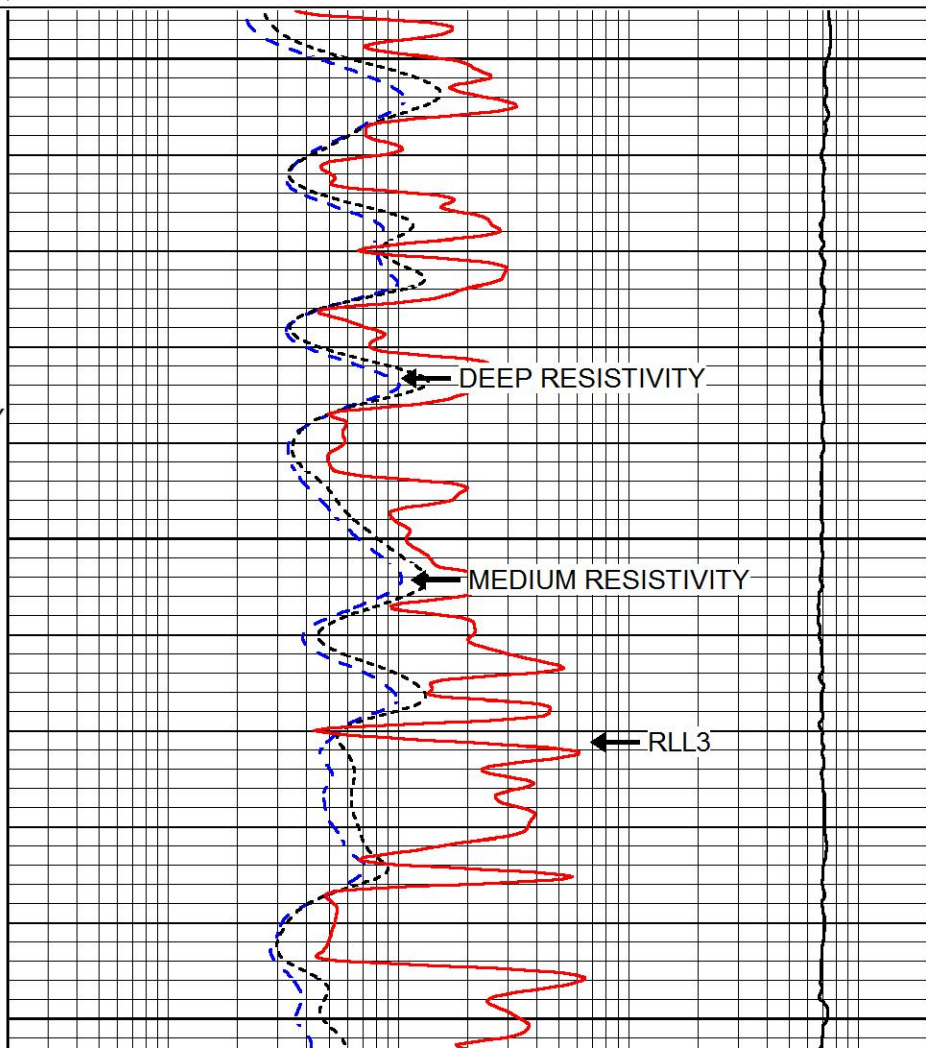
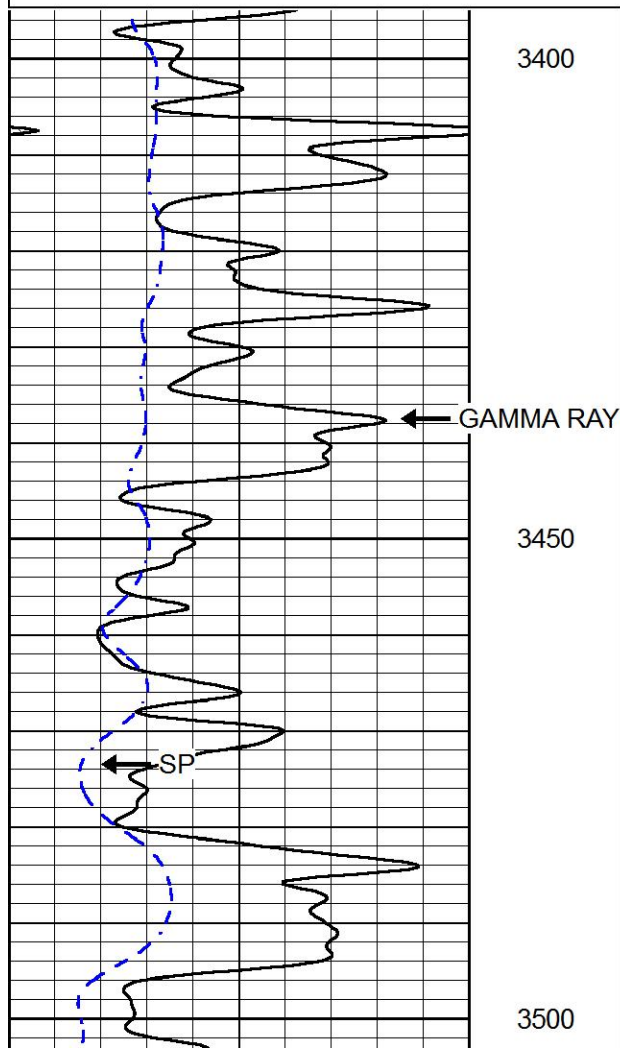
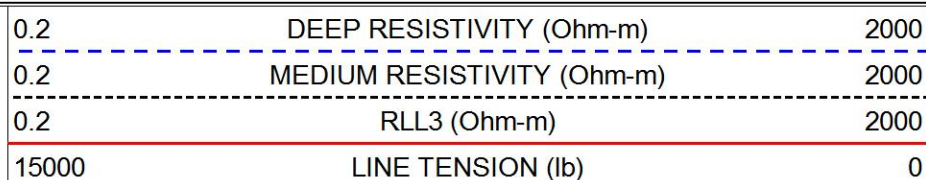
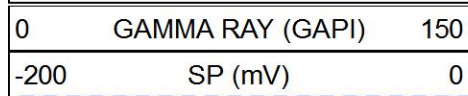


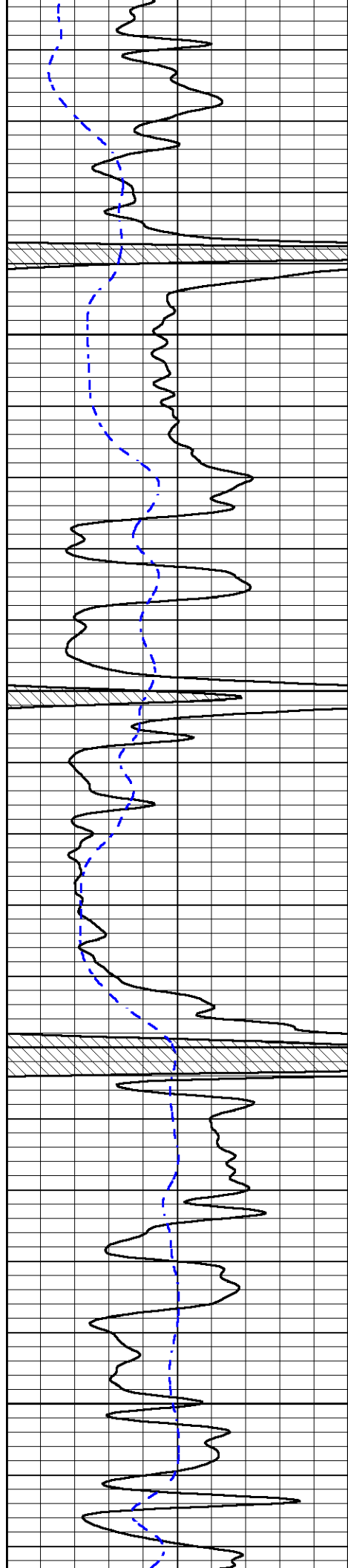
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MAIN PASS

Database File cobalt_slipke_trust_a_1_24.db
Dataset Pathname stackml/pass3.1
Presentation Format dil
Dataset Creation Fri Aug 31 04:09:05 2018
Charted by Depth in Feet scaled 1:240



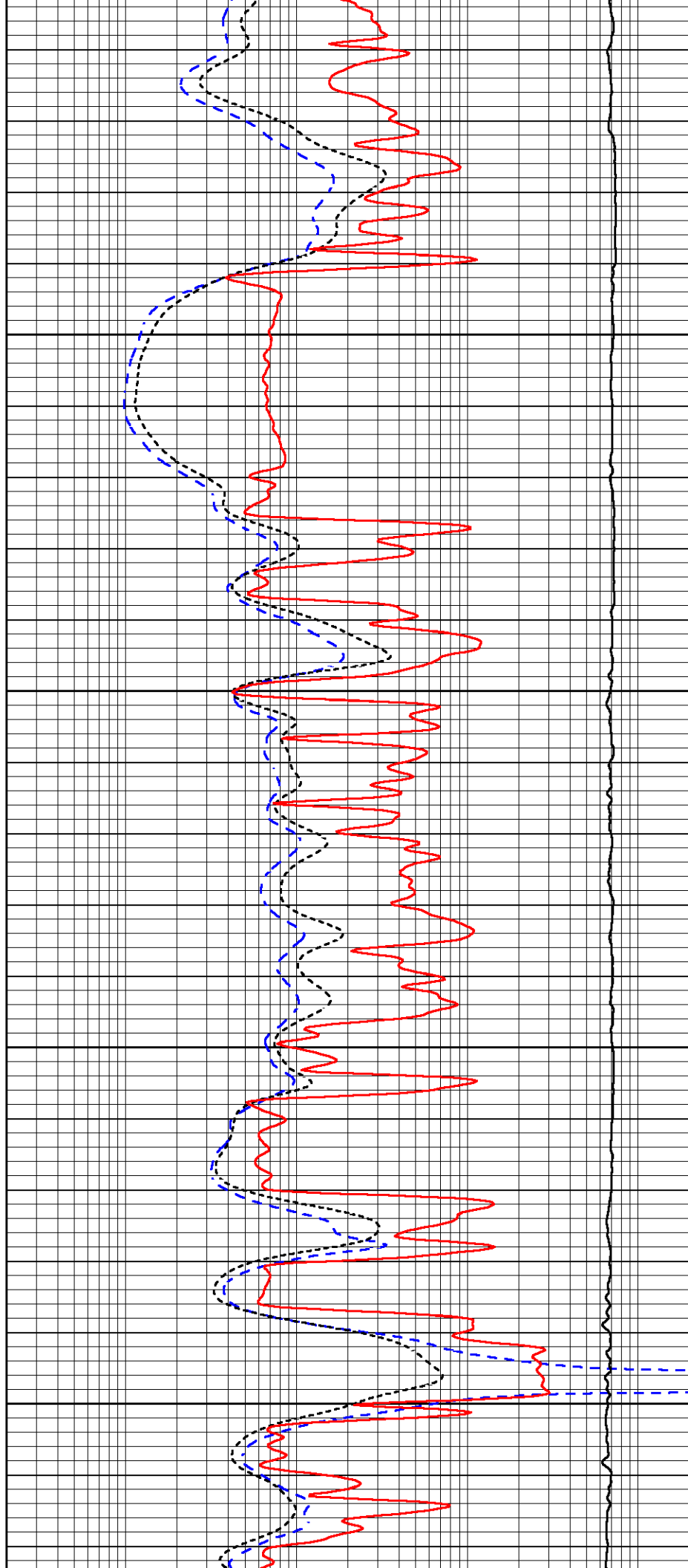


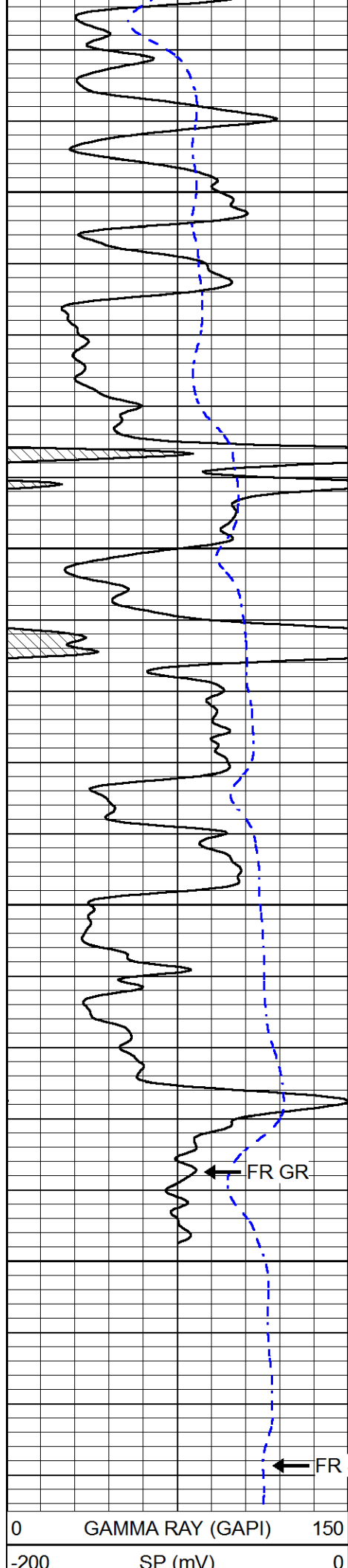
3550

3600

3650

3700





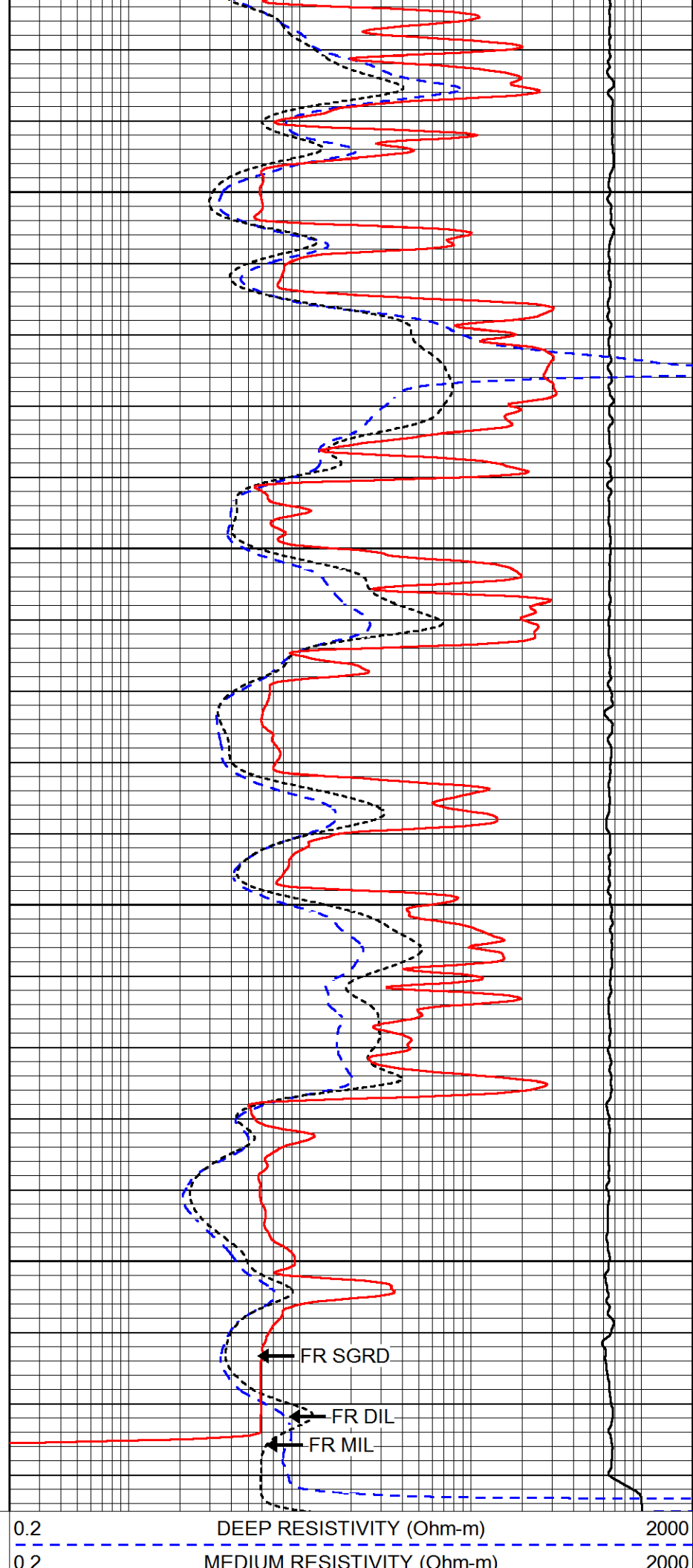
3750

3800

3850

3900

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



FR SGRD

FR DIL

FR MIL

0.2 DEEP RESISTIVITY (Ohm-m) 2000
0.2 MEDIUM RESISTIVITY (Ohm-m) 2000

0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

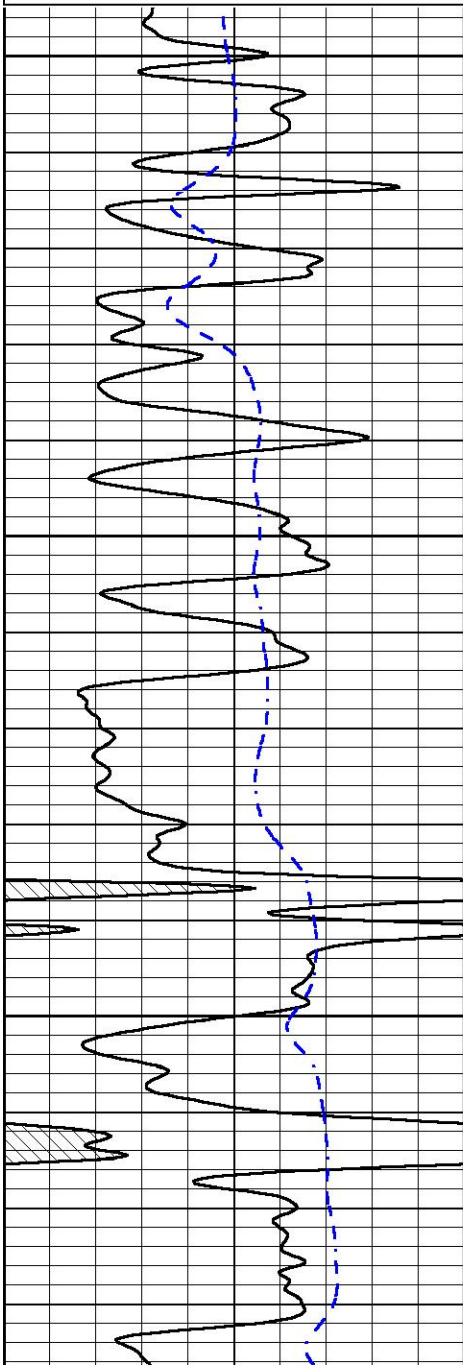


REPEAT SECTION

Database File cobalt_slipke_trust_a_1_24.db
Dataset Pathname stackml/pass2.1
Presentation Format dil
Dataset Creation Fri Aug 31 04:09:15 2018
Charted by Depth in Feet scaled 1:240

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

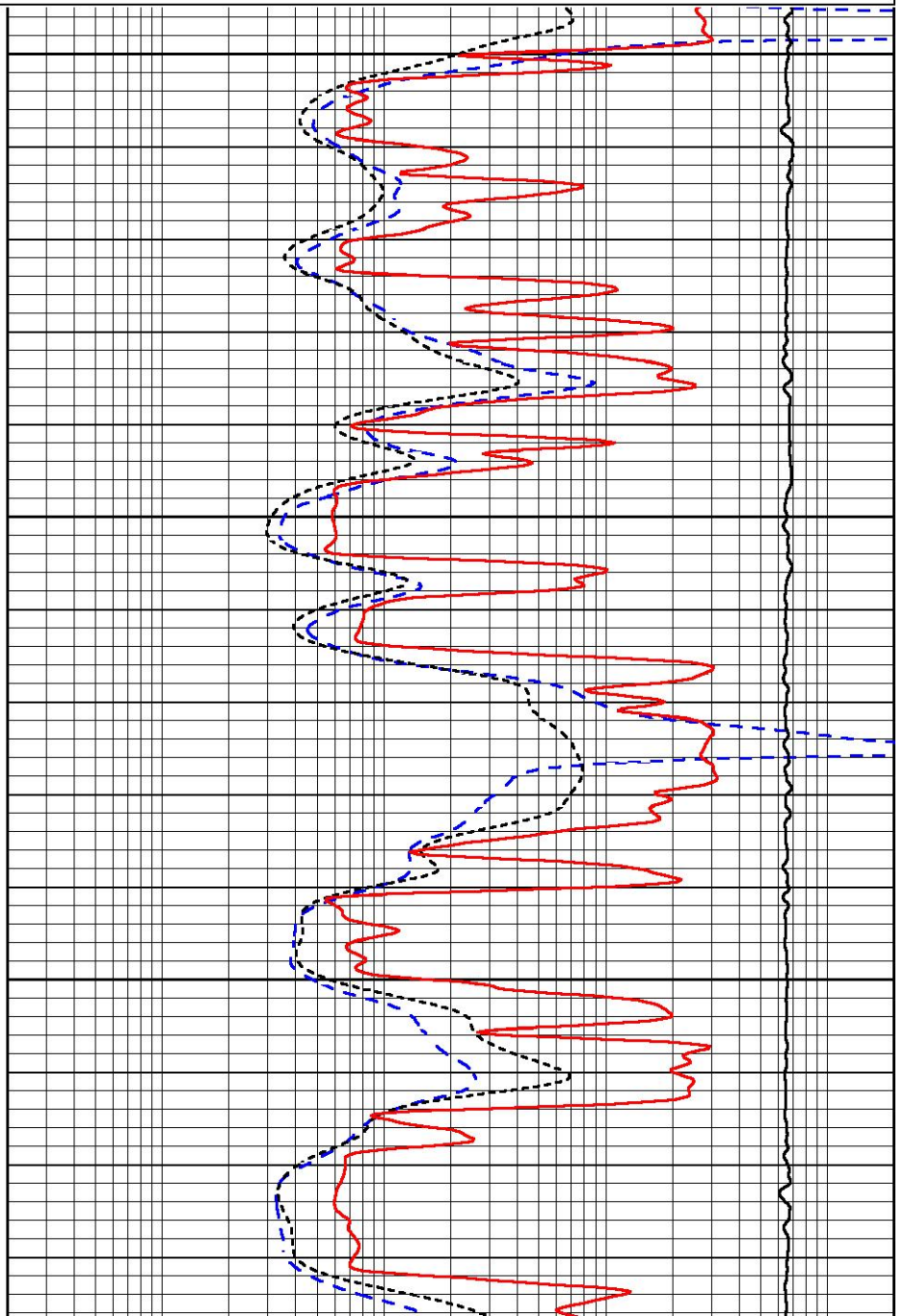
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

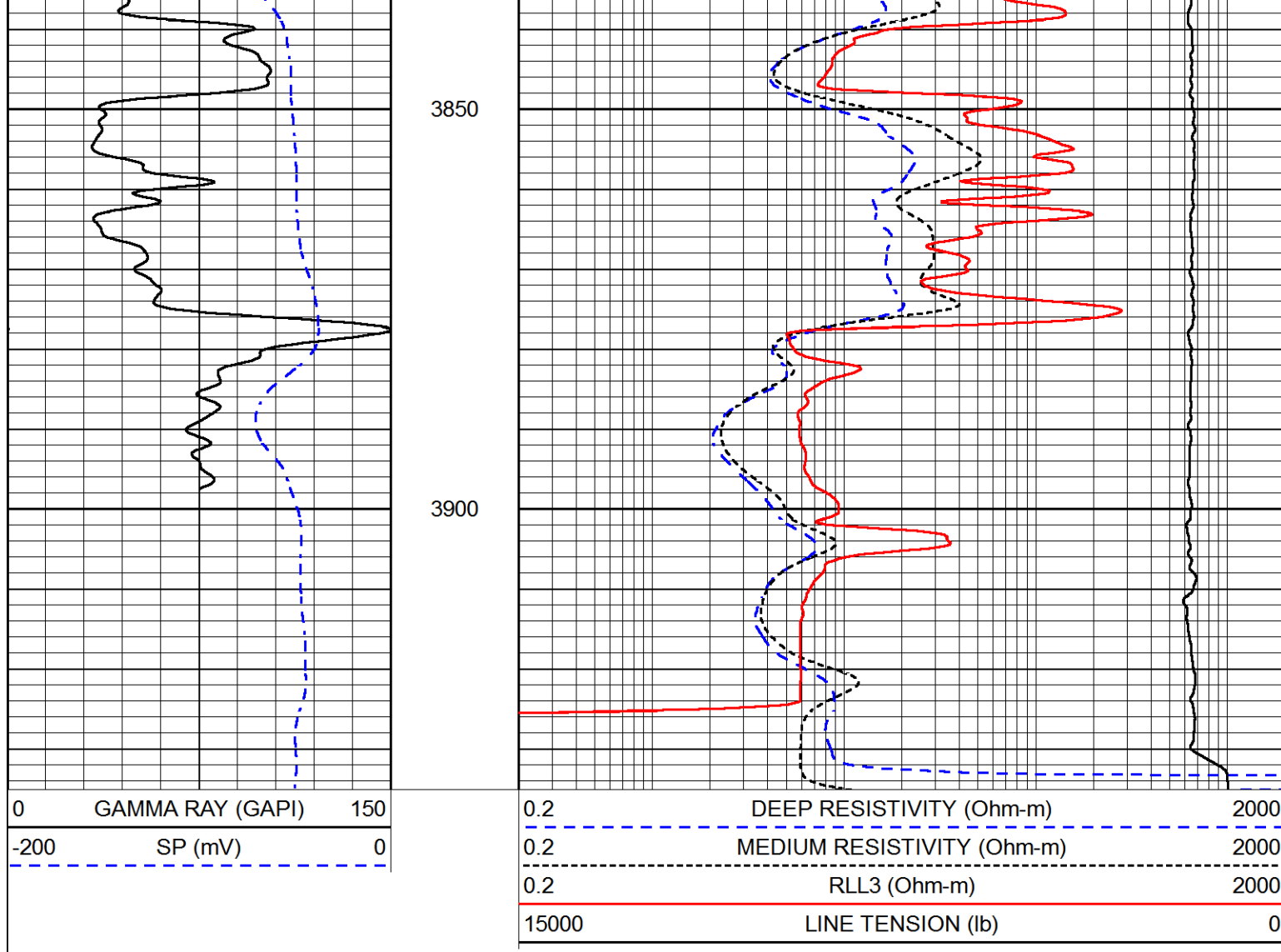


3700

3750

3800





Calibration Report	
Database File	cobalt_slipke_trust_a_1_24.db
Dataset Pathname	stackml/pass3.1
Dataset Creation	Fri Aug 31 04:09:05 2018

Dual Induction Calibration Report	
Serial-Model:	1987-M&W
Calibration Performed:	Thu Aug 09 22:42:18 2018

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

Microlog Calibration Report	
Serial-Model:	PSI-01-PSI STKBL ML
Performed:	Thu Mar 31 18:14:32 2016

Readings		References			Results	
	Zero	Cal	Zero	Cal	m	b
Normal	0.0000	1.0000	0.0000	1.0000 Ohm-m	12500.0000	-1.0000

Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	20500.0000	-1.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.8500

Compensated Density Calibration Report

Serial-Model:	126-186-M&W
Source / Verifier:	/
Master Calibration Performed:	Wed Aug 29 10:37:15 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4403.06	6298.47	cps
Aluminum	2.675	g/cc	836.60	3999.09	cps
Spine Angle = 74.70			Density/Spine Ratio = 0.534		
	Size		Reading		
Small Ring	4.00	in	2.62		
Large Ring	16.00	in	1.66		

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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