



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company THOMAS GARNER INC.
Well MARY #1
Field KACHELMAN
County STAFFORD
State KANSAS

Company THOMAS GARNER INC.
Well MARY #1
Field KACHELMAN
County STAFFORD State KANSAS

Location: API #: 15-185-24036-00-00

SEC 18 TWP 25S RGE 13W
2155 'FNL & 550' FEL

Permanent Datum GROUND LEVEL Elevation 1952'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
MEL/BHCS

Elevation
K.B. 1963'
D.F. N/A
G.L. 1952'

Date	11/9/2018
Run Number	ONE
Depth Driller	4360'
Depth Logger	4356'
Bottom Logged Interval	4354'
Top Log Interval	350'
Casing Driller	8.625" @ 376'
Casing Logger	376'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	5400
Density / Viscosity	9.2 62
pH / Fluid Loss	10.0 9.6
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.70 @ 56
Rmt @ Meas. Temp	0.53 @ 56
Rmc @ Meas. Temp	0.95 @ 56
Source of Rmt / Rmc	CHARTS
Rm @ BHT	0.33 @ 120
Operating Rig Time	5 HOURS
Max Rec. Temp. F	120
Equipment Number	108
Location	HAYS
Recorded By	IAN MABB
Witnessed By	TOM GARNER

<<< Fold Here >>>

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.

ST. JOHN KS.

SOUTH TO HWY 50, 7 MILE SOUTH, 2 MILE WEST, 1 1/2 NORTH,
WEST INTO

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

Engineer: IAN MABB

Operator:

Operator:

Operator:

This Log Record Was Witnessed By

Primary Witness: TOM GARNER

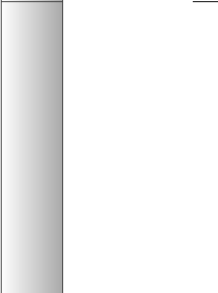
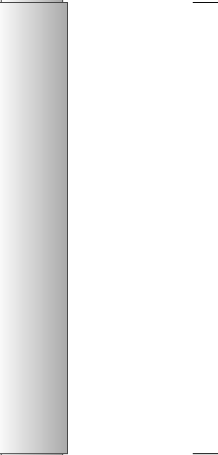
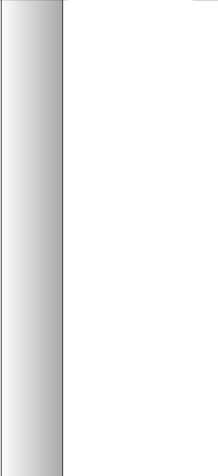
Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 100	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 4	mmho/m -10	mV 140	degF 0	Off	ft 4356

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 (817-947)	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						

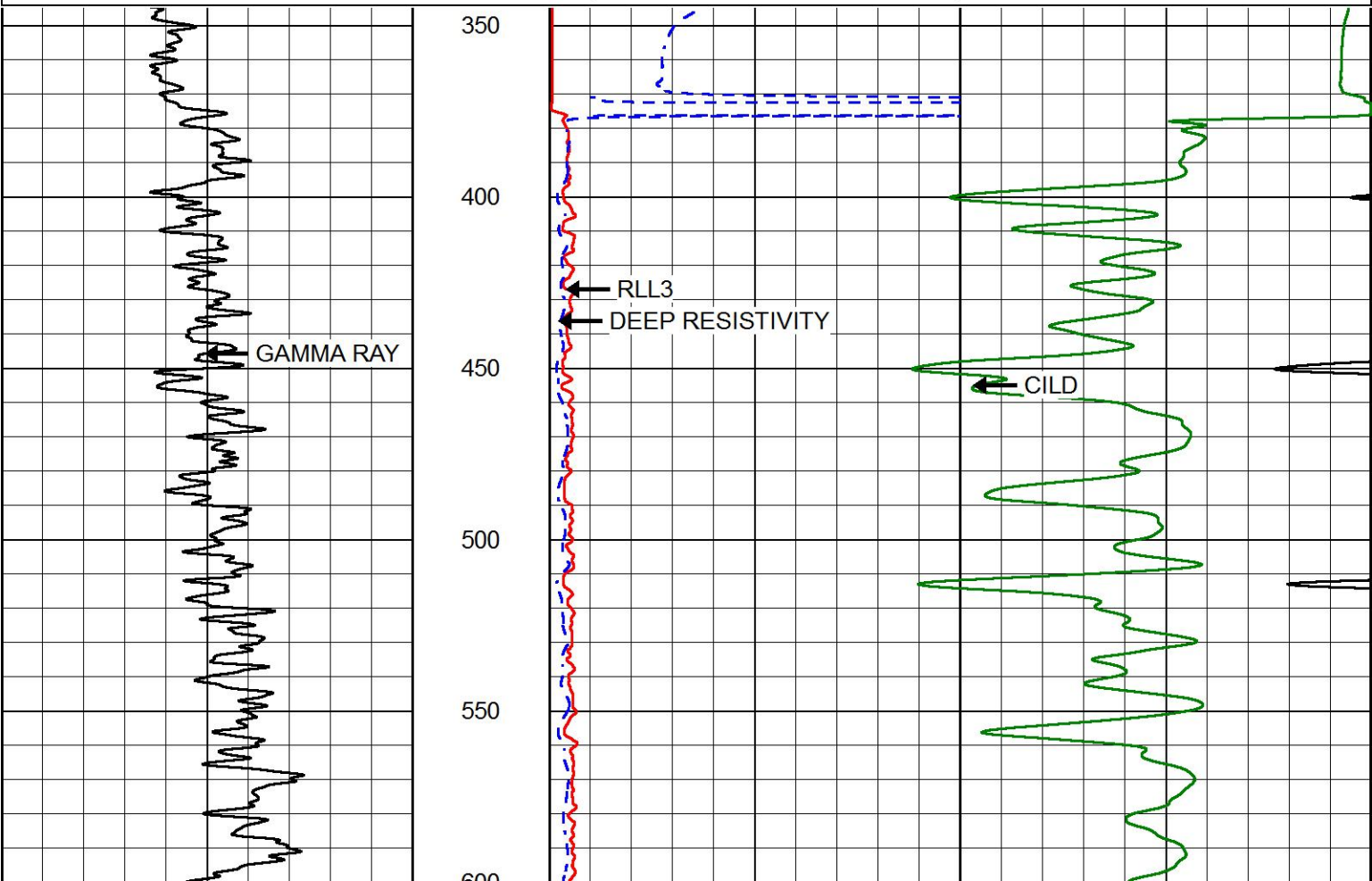
CILM	4.70								
SP	0.20								
Dataset: thomas_garner_mary_1.db: field/well/stack/pass3.1 Total length: 35.50 ft Total weight: 620.00 lb O.D.: 4.00 in									



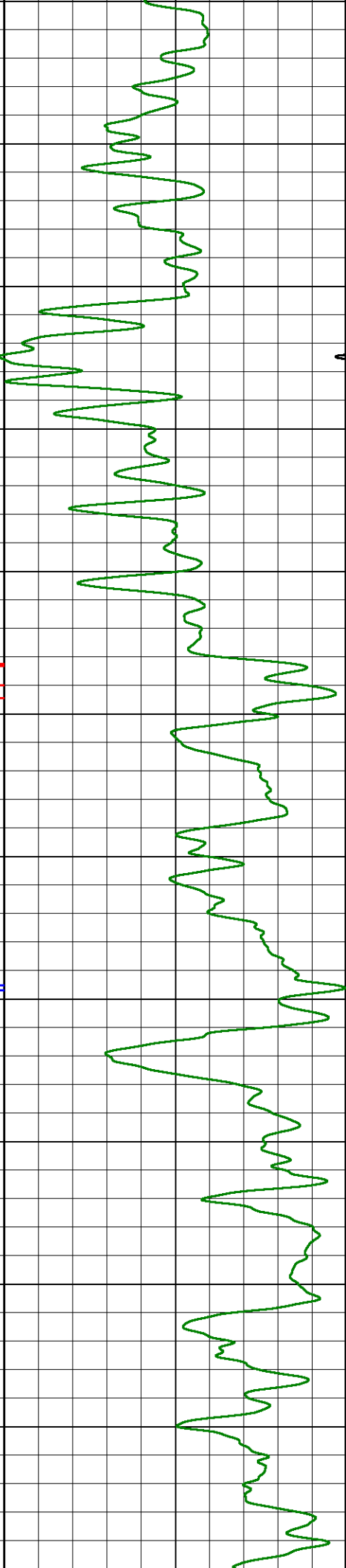
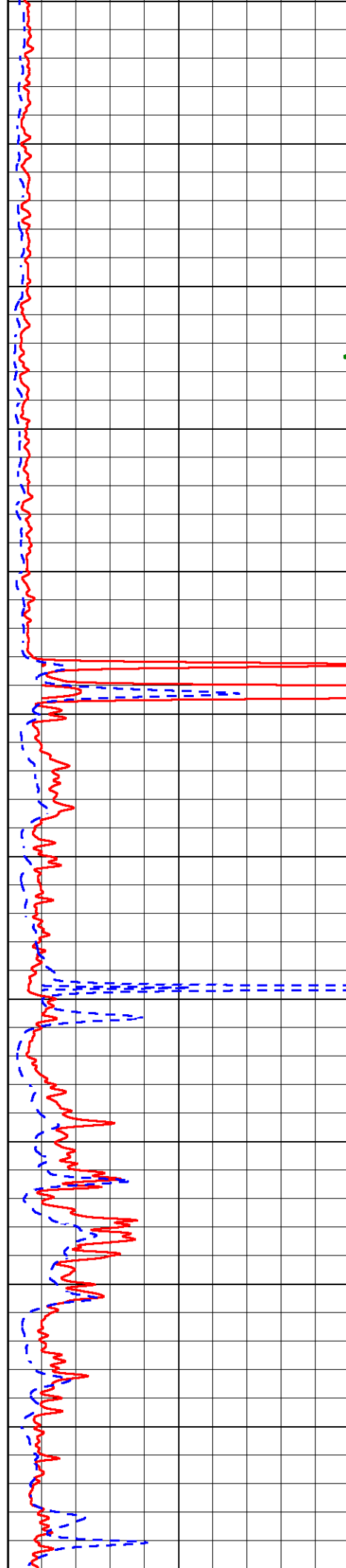
MAIN PASS

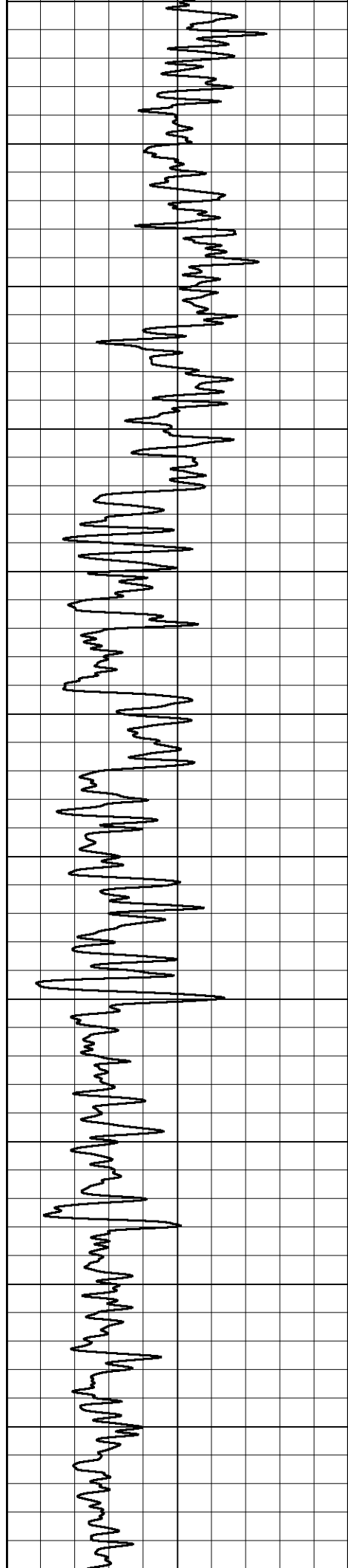
Database File	thomas_garner_mary_1.db
Dataset Pathname	stack/pass4.1
Presentation Format	dil2in
Dataset Creation	Fri Nov 09 22:41:30 2018
Charted by	Depth in Feet scaled 1:600

0	GAMMA RAY (GAPI)	150	2000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50			
0	DEEP RESISTIVITY (Ohm-m)	50			
50	RLL3 (Ohm-m)	500			
50	RILD (Ohm-m)	500			

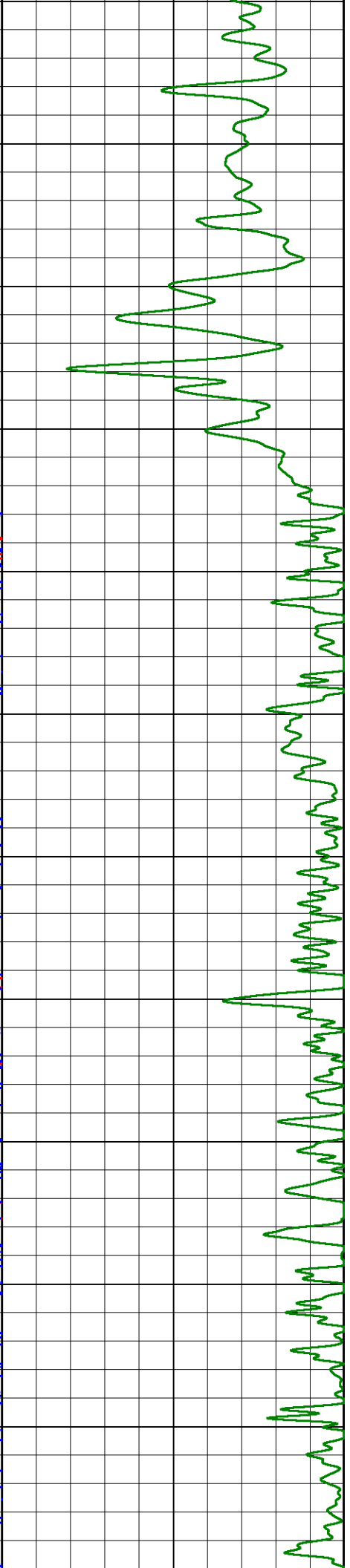
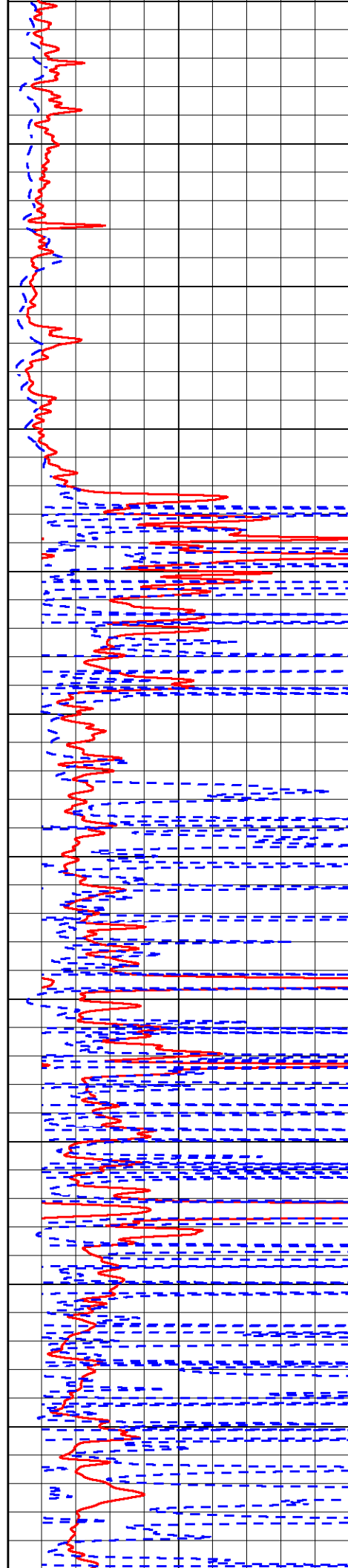


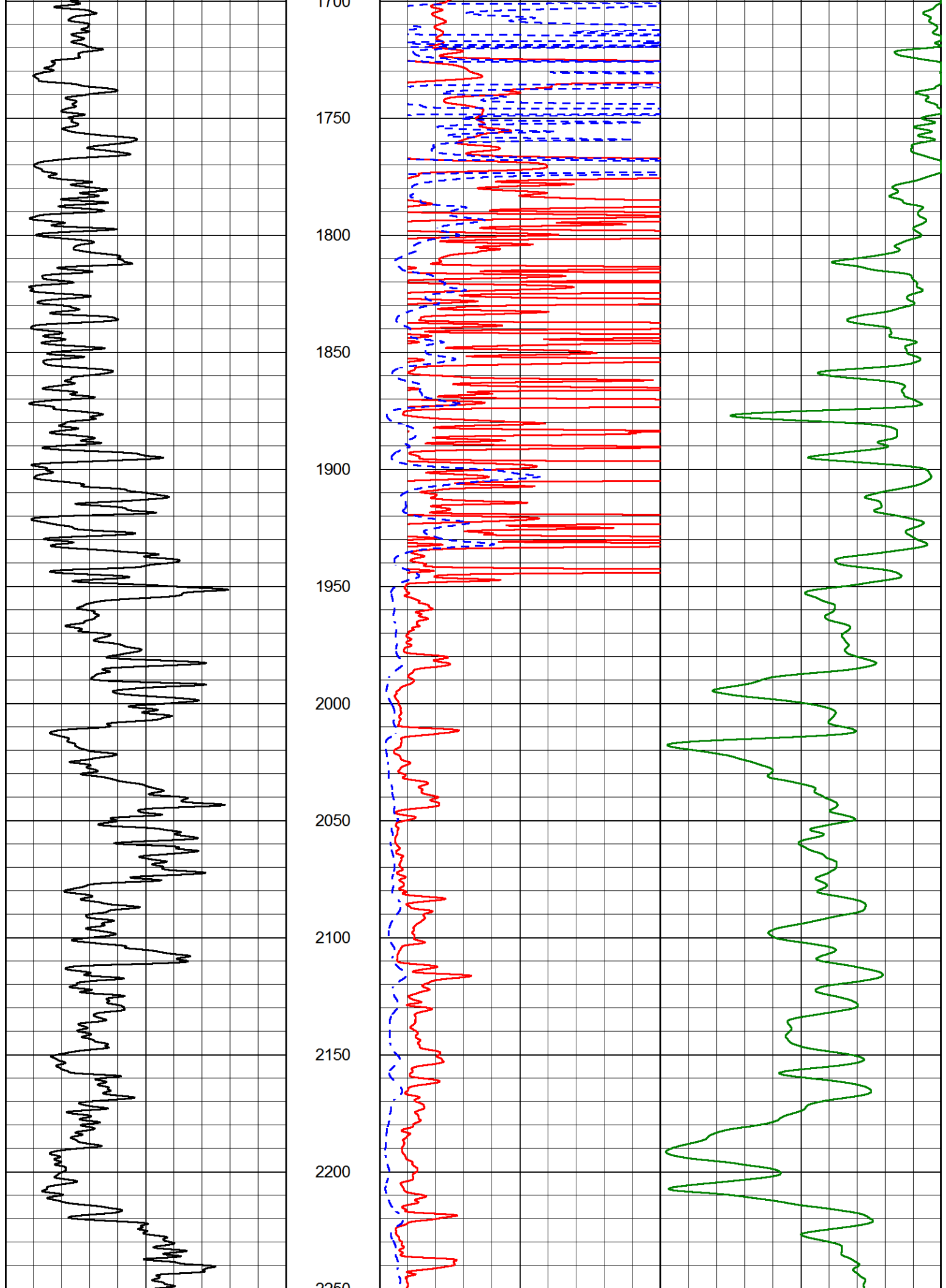
800
650
700
750
800
850
900
950
1000
1050
1100
1150

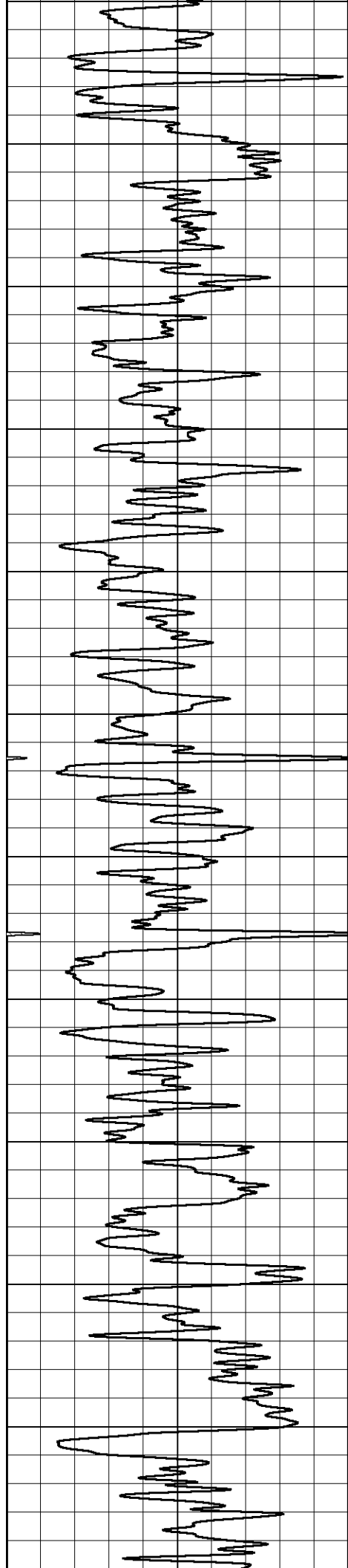




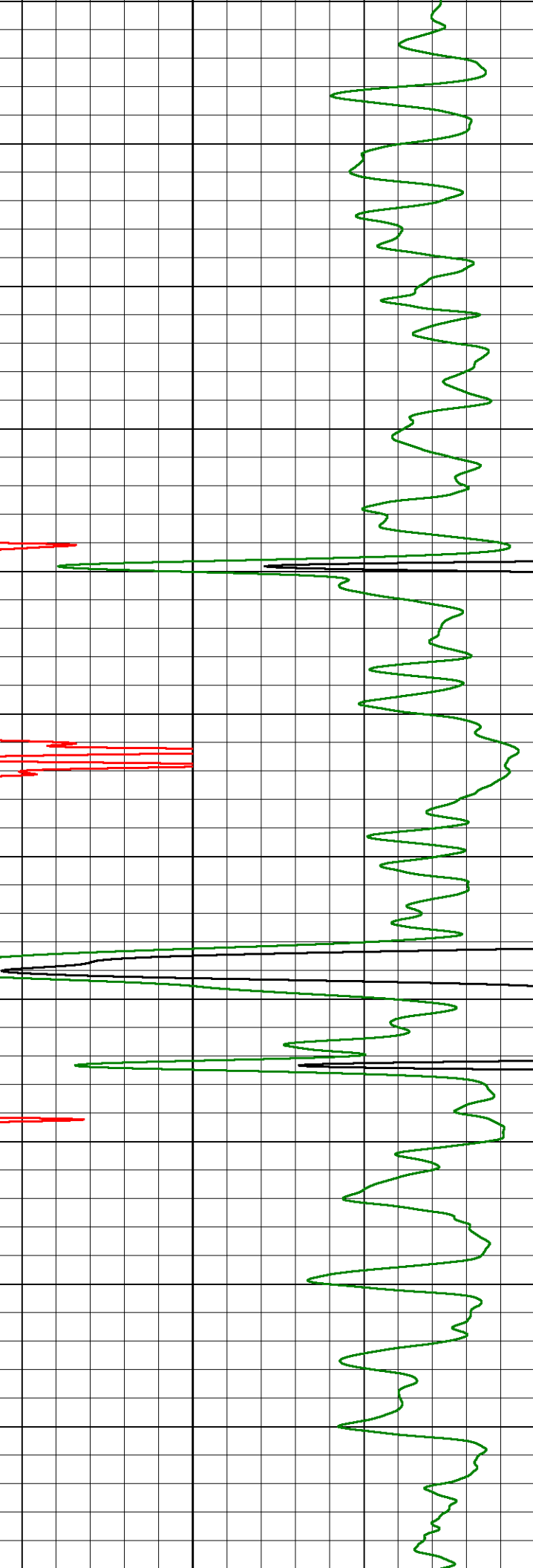
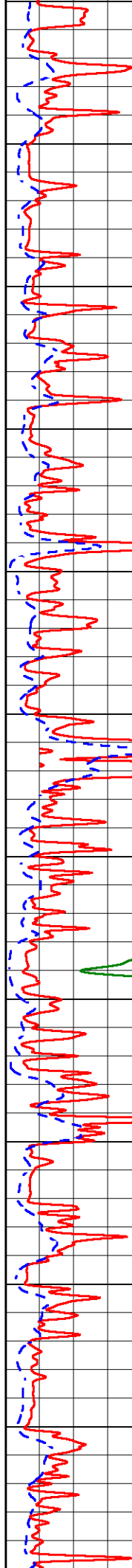
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700

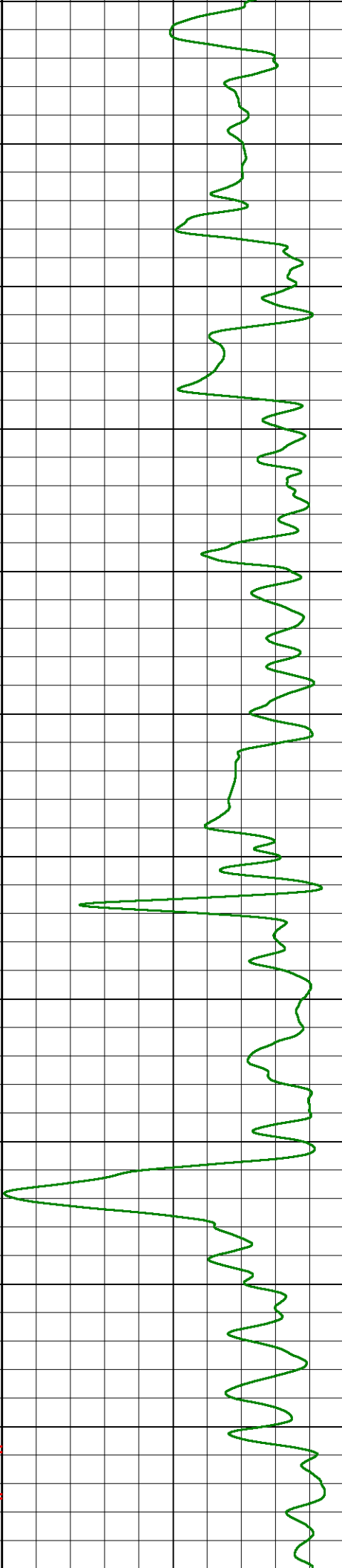
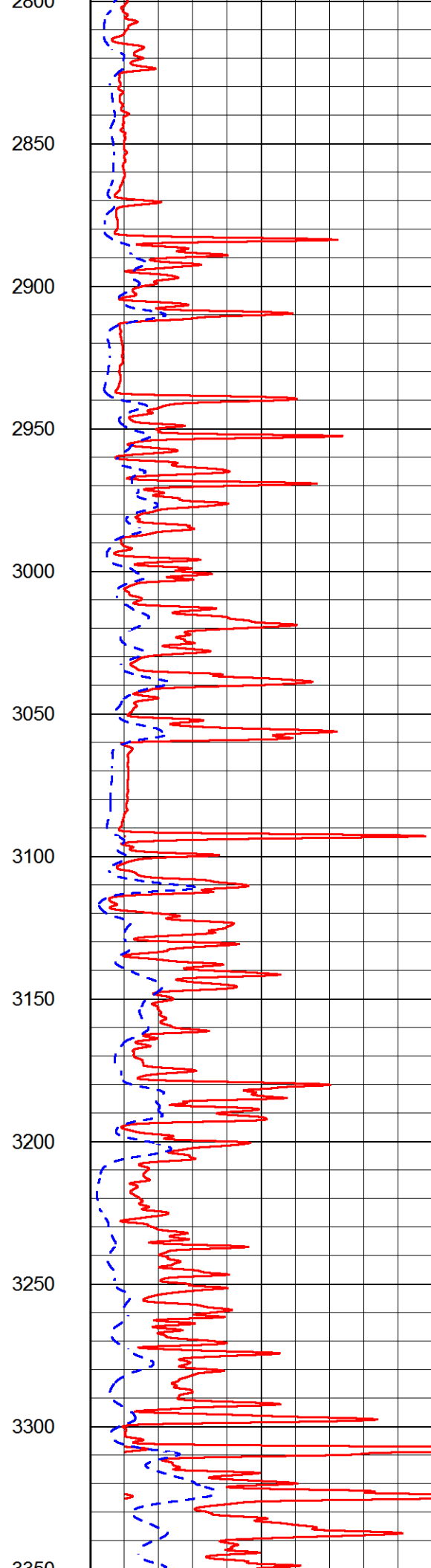
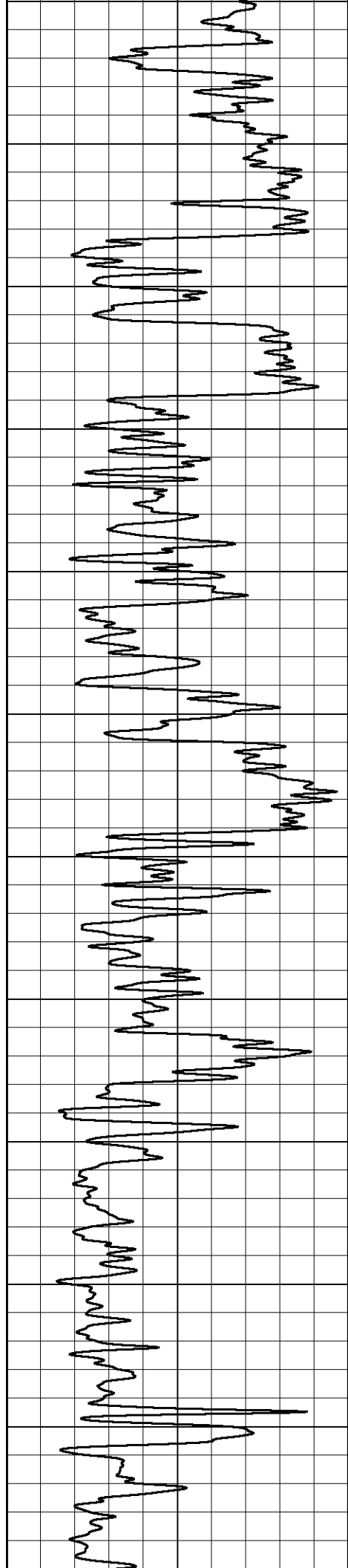


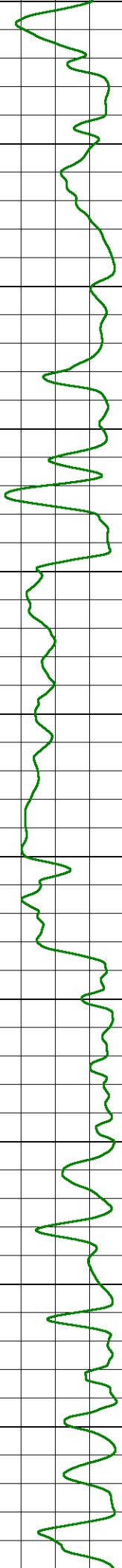
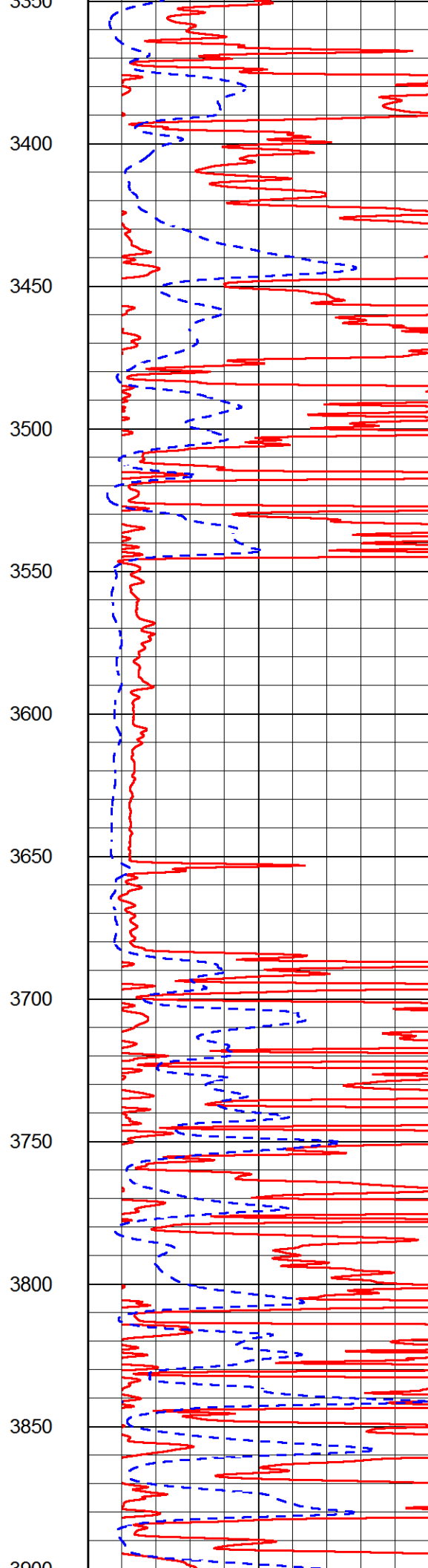
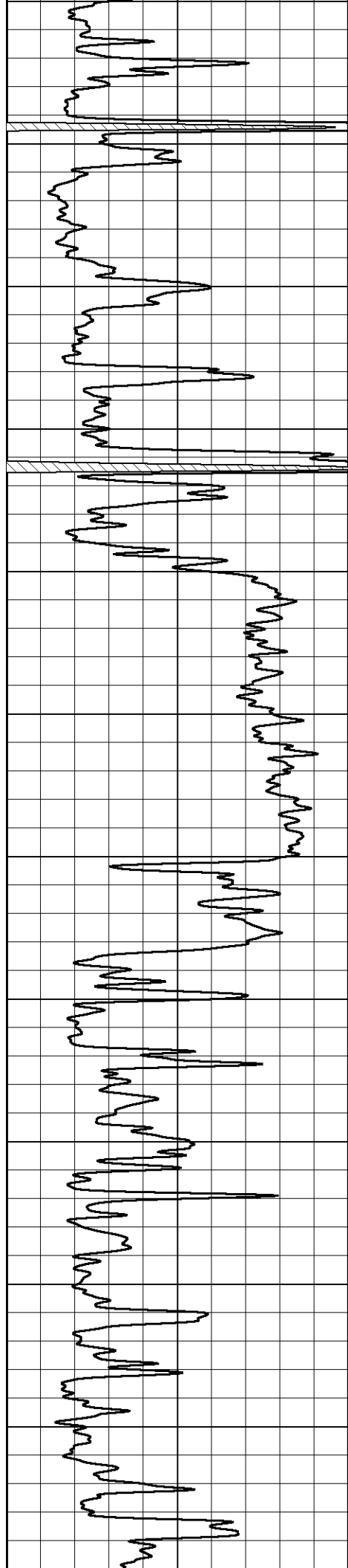


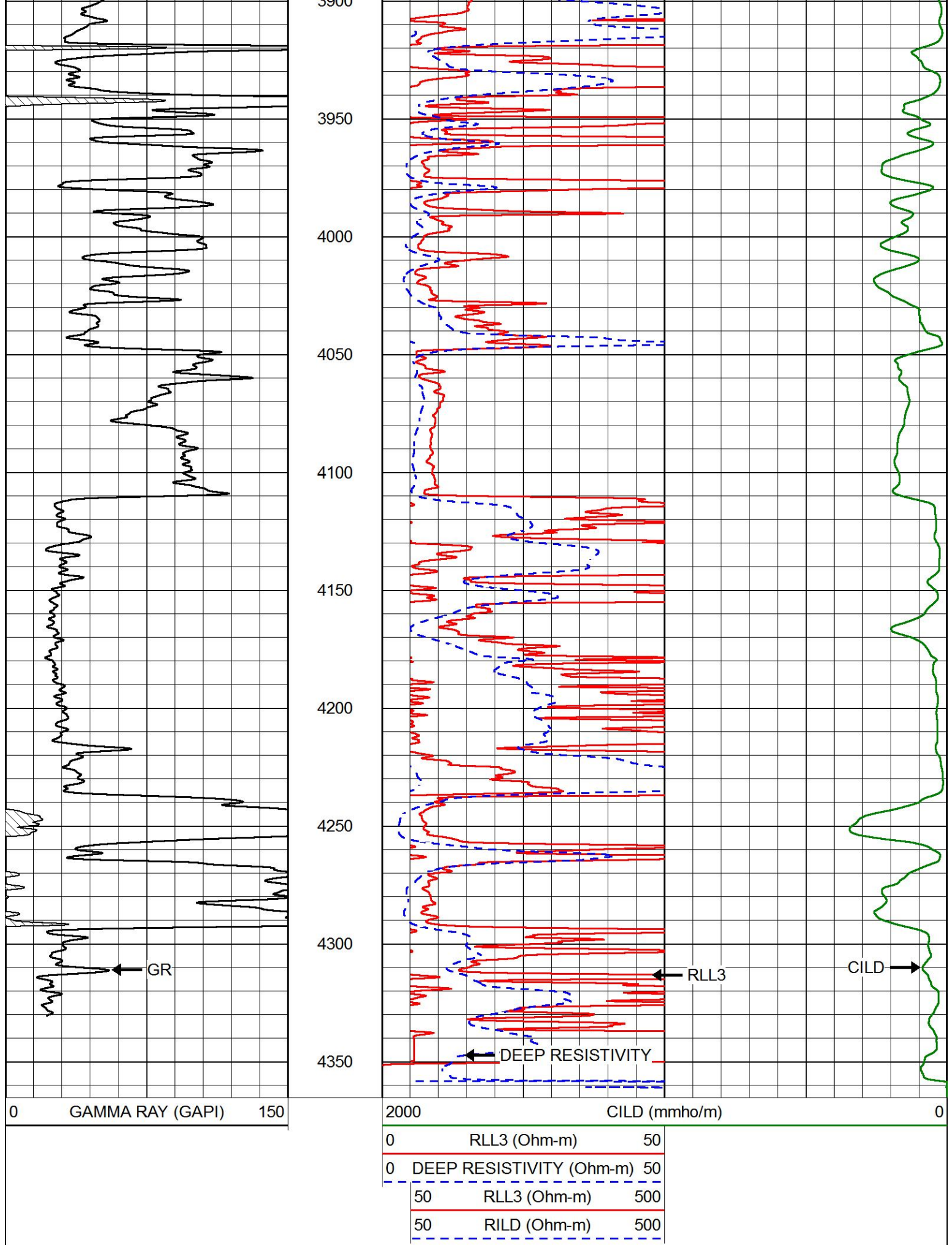


2250
2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800





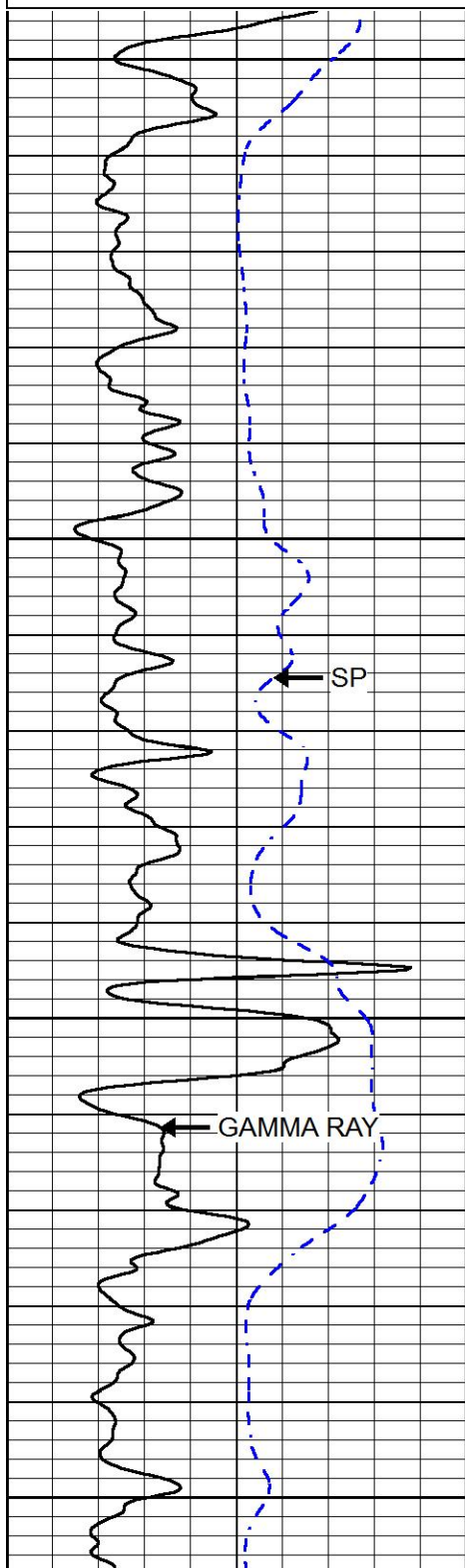




Database File thomas_garner_mary_1.db
 Dataset Pathname stack/pass3.1
 Presentation Format dil
 Dataset Creation Fri Nov 09 22:36:19 2018
 Charted by Depth in Feet scaled 1:240

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

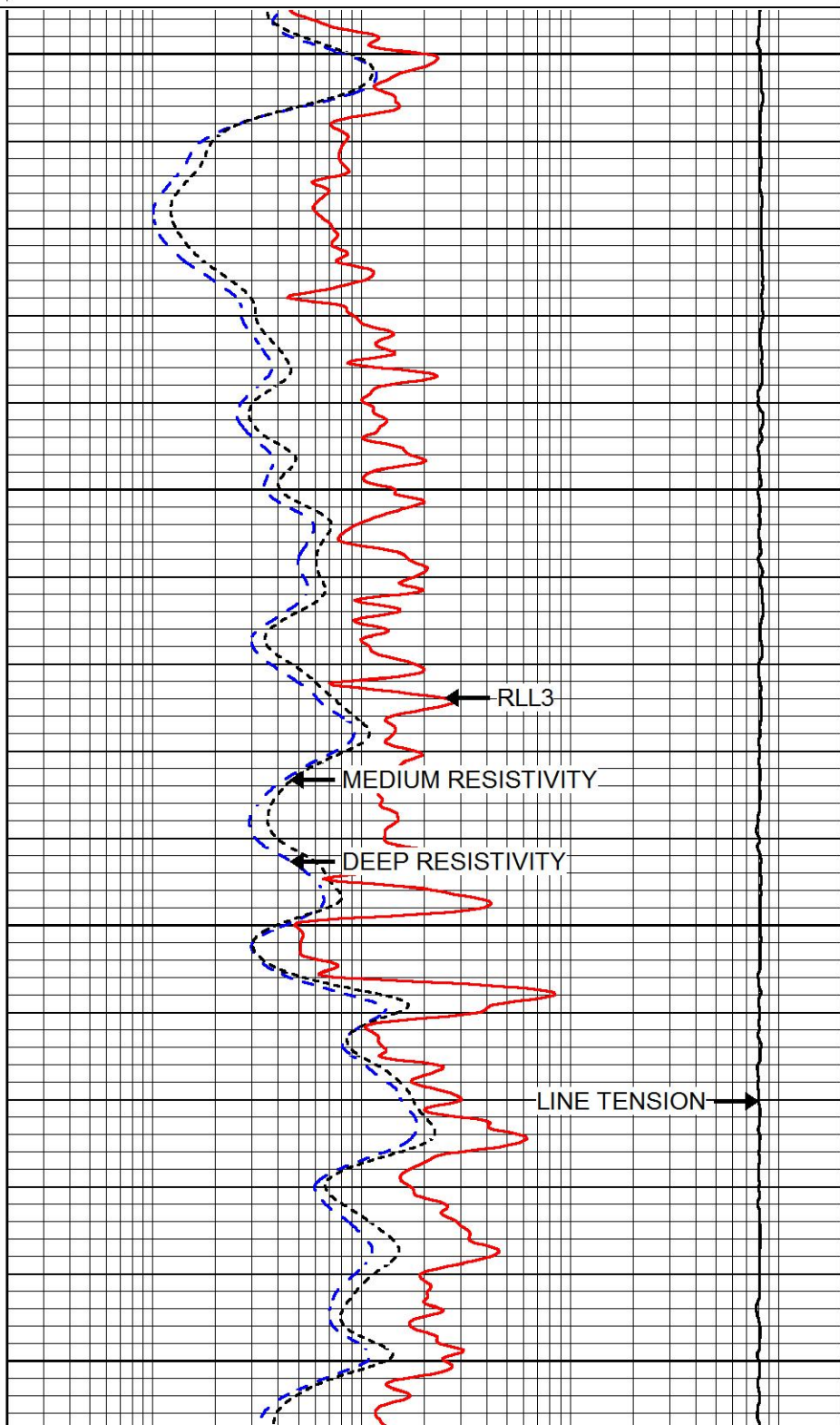


3200

3250

3300

3350

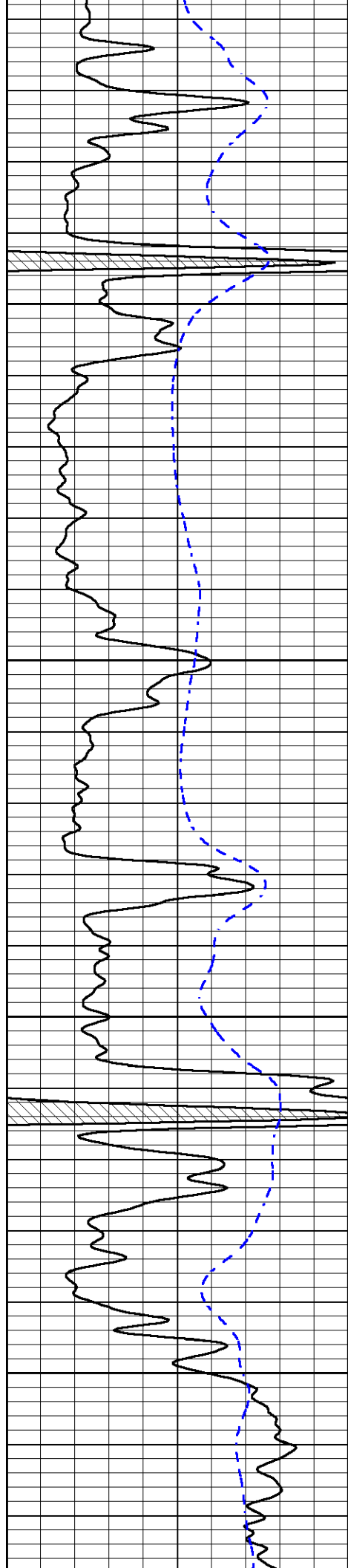


RLL3

MEDIUM RESISTIVITY

DEEP RESISTIVITY

LINE TENSION

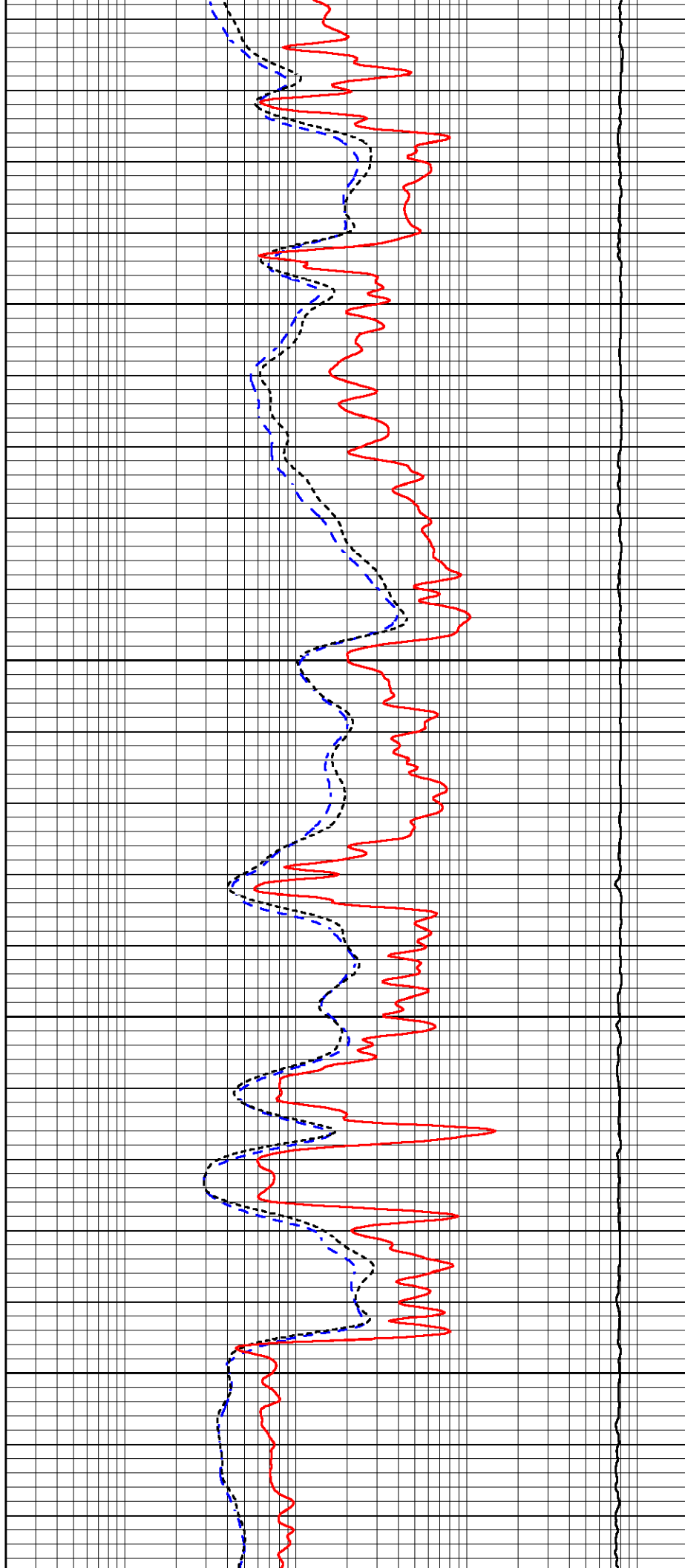


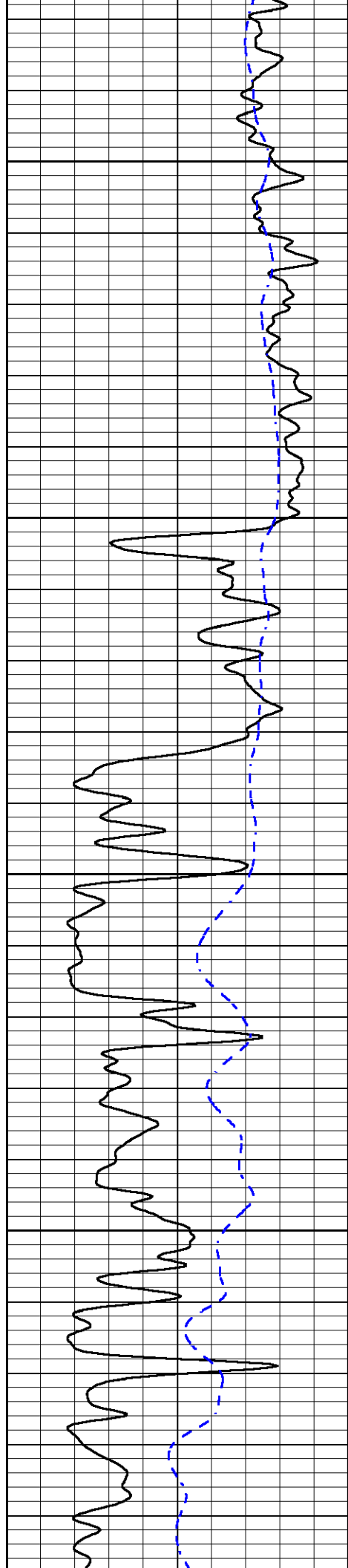
3400

3450

3500

3550



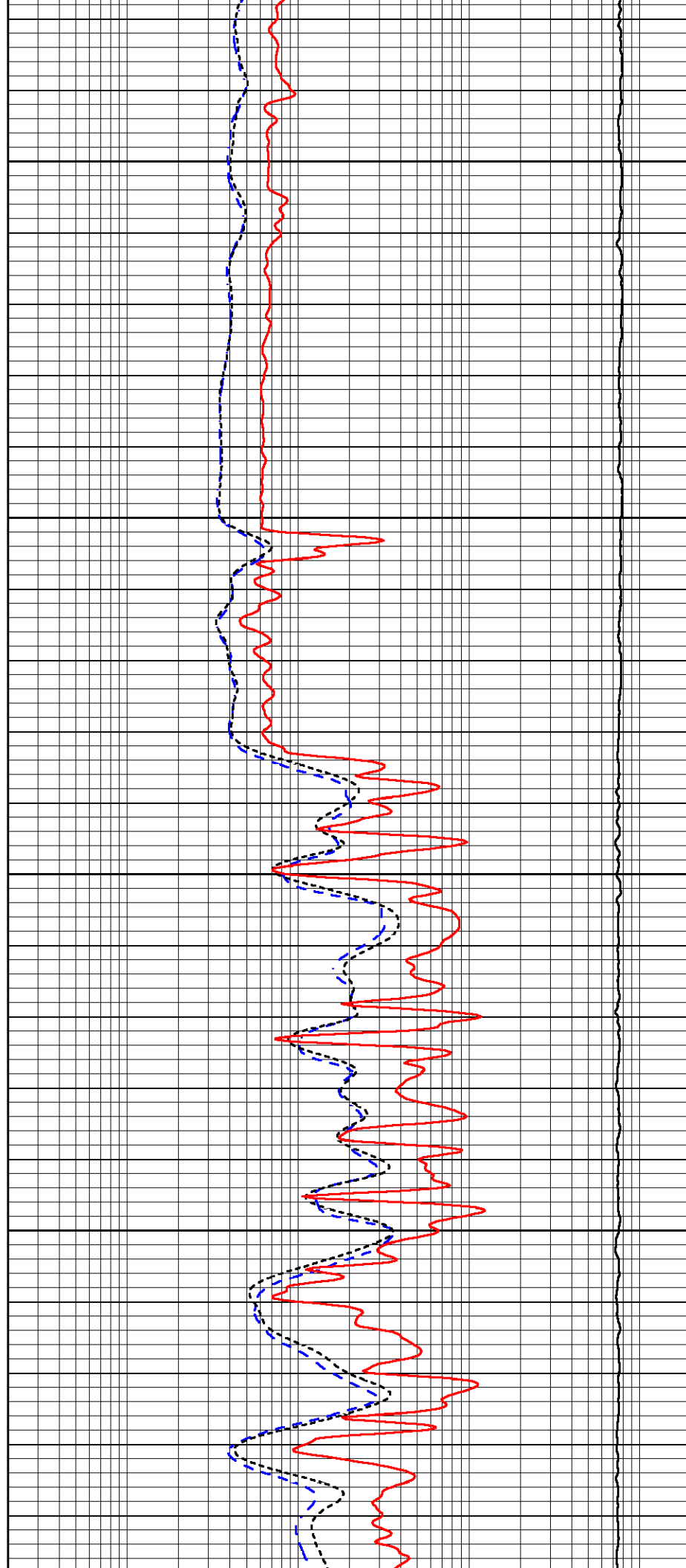


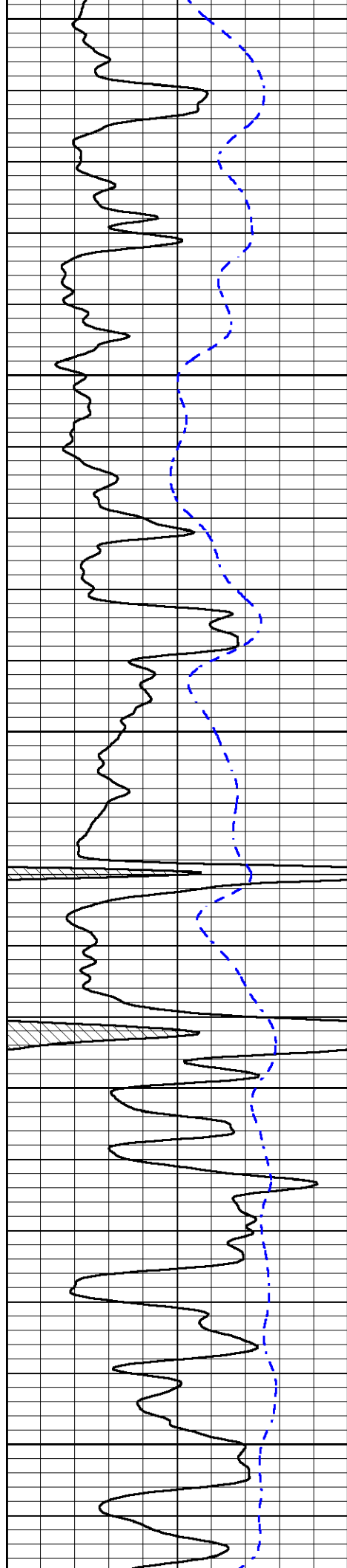
3600

3650

3700

3750





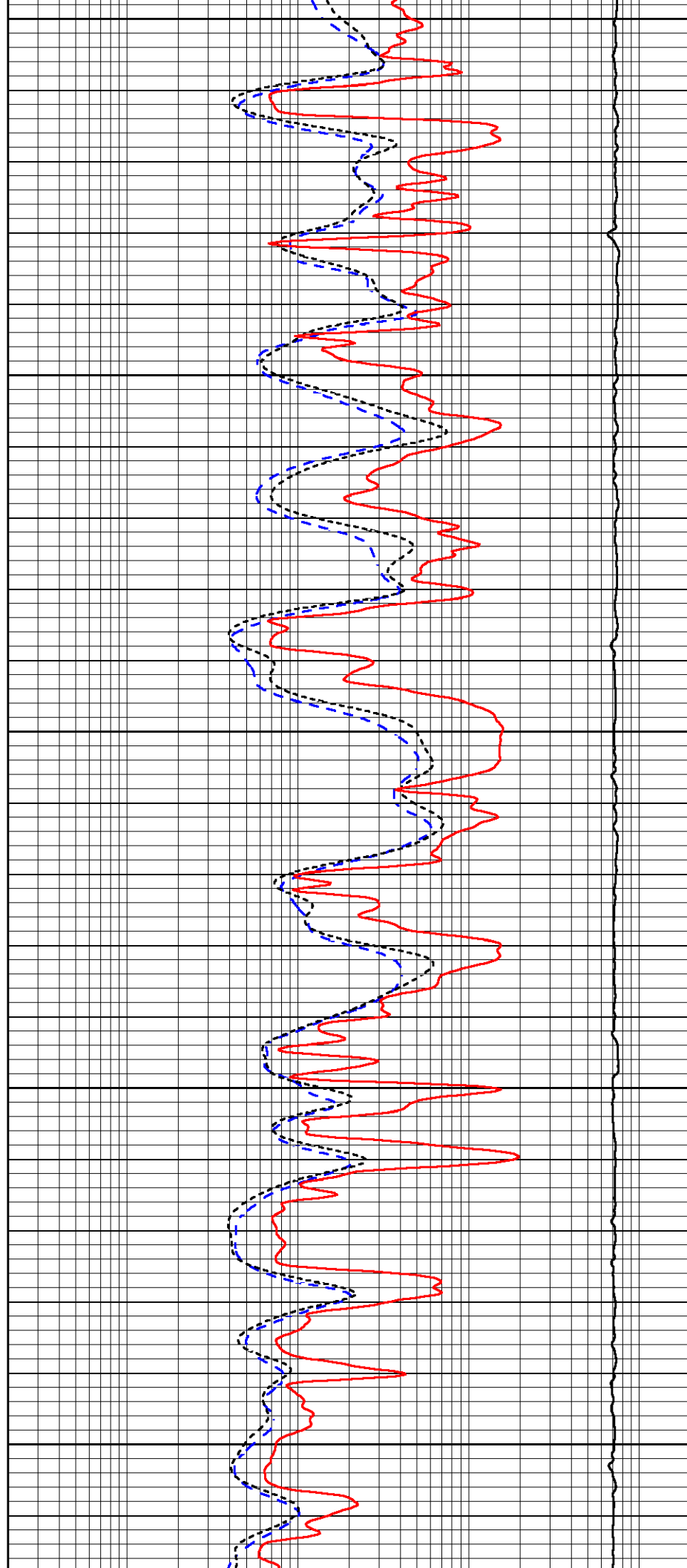
3800

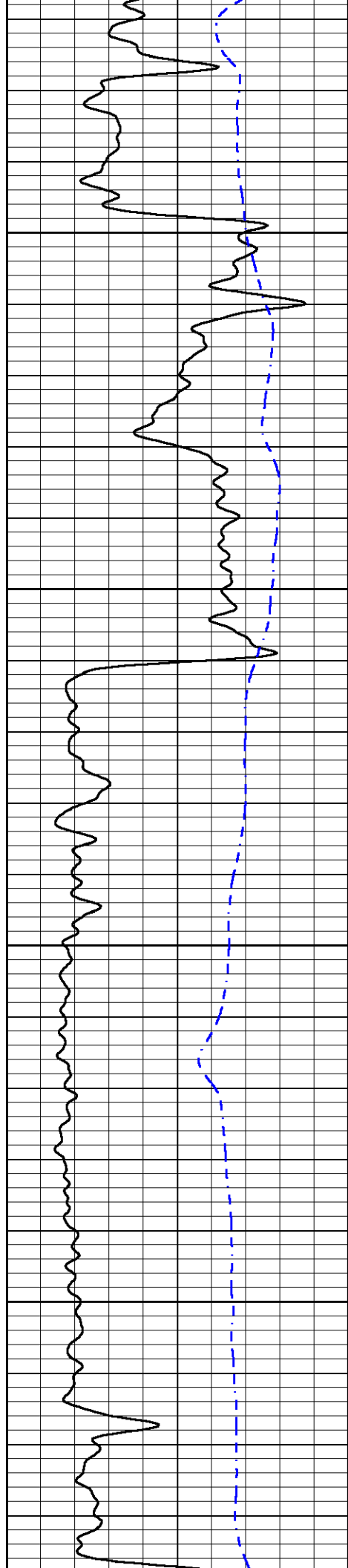
3850

3900

3950

4000



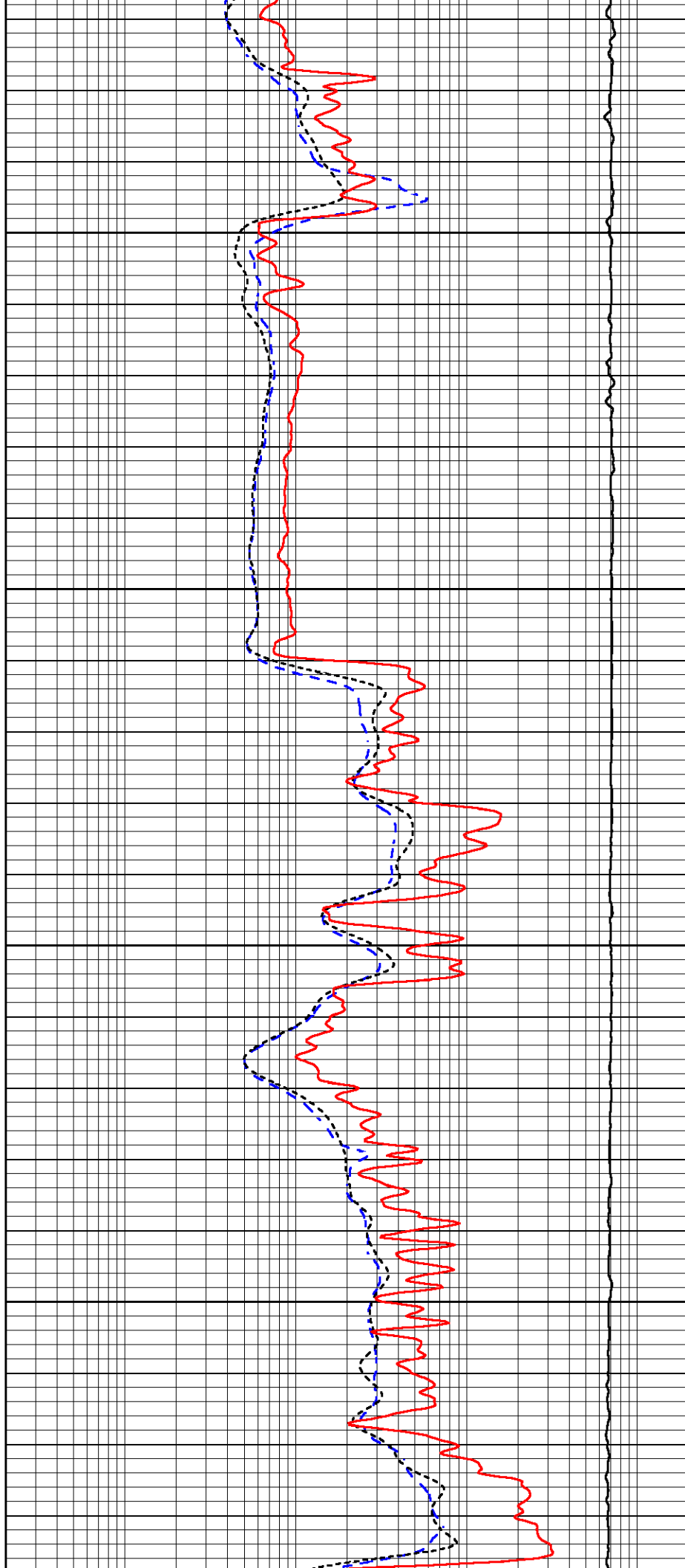


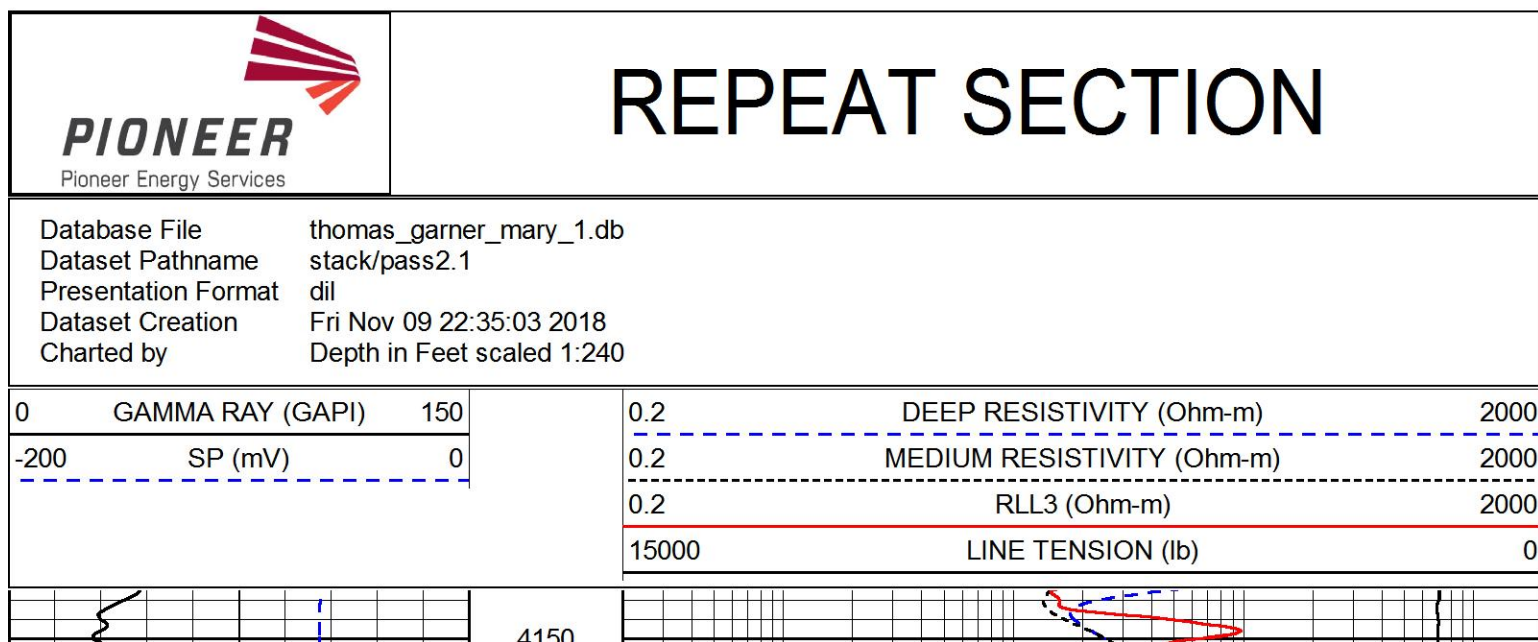
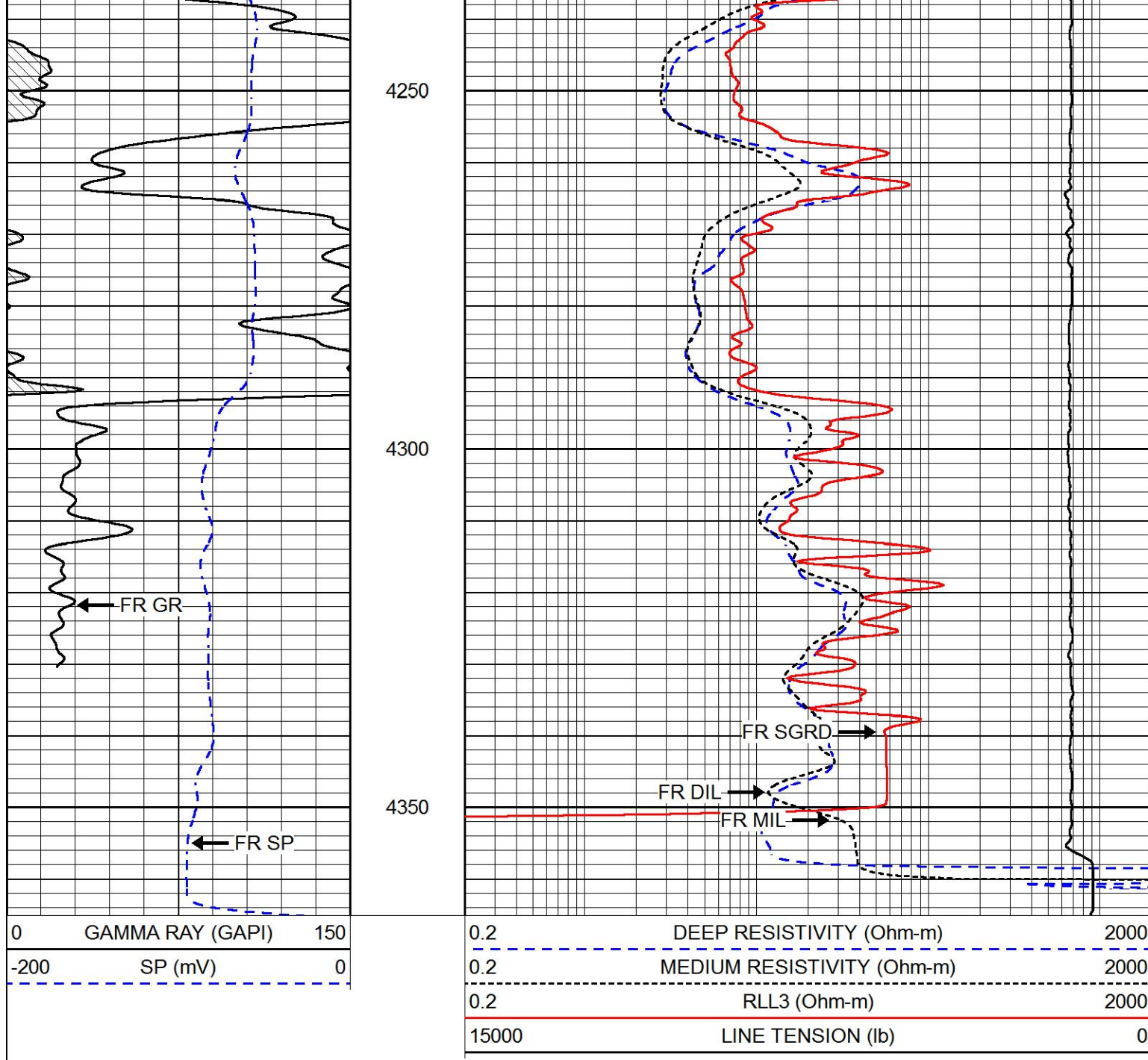
4050

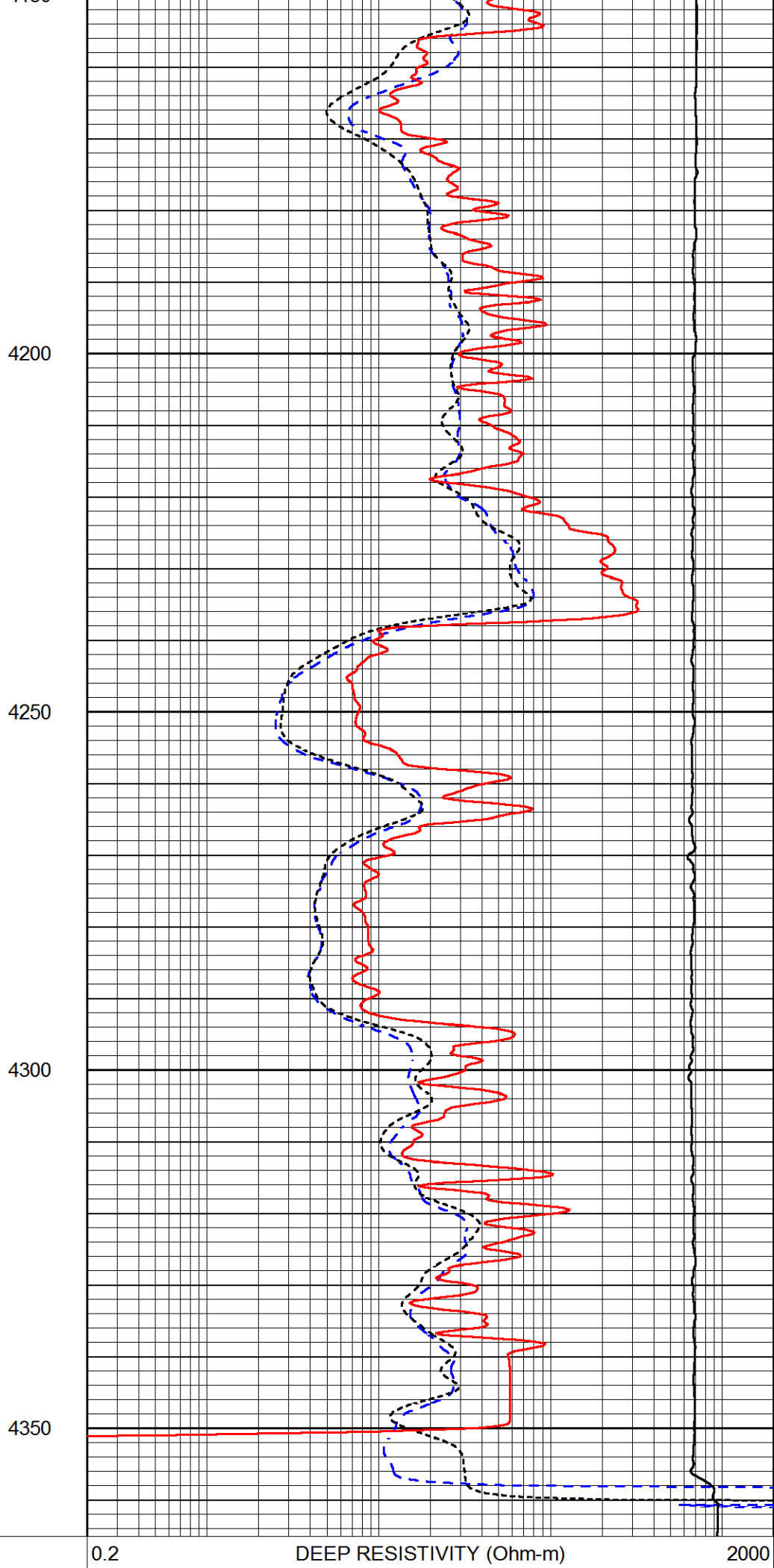
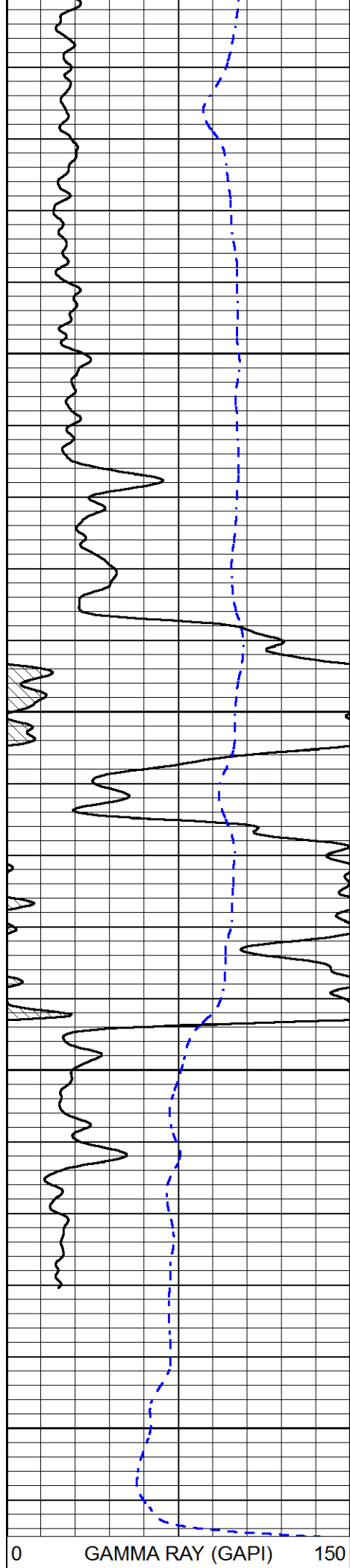
4100

4150

4200







-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			15000	LINE TENSION (lb)	0

Calibration Report	
Database File	thomas_garner_mary_1.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Fri Nov 09 22:36:19 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

Compensated Density Calibration Report
--

Serial-Model:	817-947-M&W
Source / Verifier:	/
Master Calibration Performed:	Thu Nov 08 10:59:41 2018

Master Calibration					
Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc	5524.90	5328.23	cps
Aluminum	2.675	g/cc	1020.59	3369.54	cps
Spine Angle = 74.82			Density/Spine Ratio = 0.526		
Size			Reading		
Small Ring	4.00	in	1.02		
Large Ring	14.00	in	1.15		

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



PIONEER

Pioneer Energy Services

Company

THOMAS GARNER INC.

Well

MARY #1

Field

KACHELMAN

County

STAFFORD

State

KANSAS