



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company VAL ENERGY, INC.
Well HERRON KIRK UNIT NO. 1-21
Field WILDCAT
County SCOTT State KANSAS

Location: API #: 15-171-21180-00-00

667' FNL & 2,301' FEL

SEC 21 TWP 17S RGE 33W

Permanent Datum GROUND LEVEL Elevation 2988'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
MEL
Elevation
K.B. 2993'
D.F. N/A
G.L. 2988'

Date 10/6/2016

Run Number ONE

Depth Driller 4760'

Depth Logger 4756'

Bottom Logged Interval 4755'

Top Log Interval 250'

Casing Driller 8,625" @ 291'

Casing Logger 290'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 8800

Density / Viscosity 9.2 64

pH / Fluid Loss 9.5 10.4

Source of Sample FLOWLINE

Rm @ Meas. Temp .53 @ 66

Rmt @ Meas. Temp .40 @ 66

Rmc @ Meas. Temp .72 @ 66

Source of Rmt / Rmc CHARTS

Rm @ BHT .28 @ 124

Operating Rig Time 2 1/2 HOURS

Max Rec. Temp. F 124 DEG F.

Equipment Number 108

Location COLBY

Recorded By J. LONG

Witnessed By TIM PRIEST

<<< 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.

OAKLEY, SOUTH TO HIGHWAY 4 AND HIGHWAY 83 INTERSECTION (230 ROAD),
4 WEST TO BIG VALLEY DRIVE (HEREFORD ROAD), 2 1/2 SOUTH ON BIG VALLEY DRIVE
(FOLLOW CURVES), 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. LONG
Operator: B. BECKER
Operator: J. ROME
Operator:

This Log Record Was Witnessed By

Primary Witness: TIM PRIEST
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\valenergy_herronkirk_1-21.db
Dataset field/well/stackmel/pass3.1/_vars_

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 -335	degF 53	Off	ft 4756

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 (71-914)	8.50	4.00	250.00
DCAL	28.42					
SSD	27.93					
MCAL	19.83		ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00
MI	19.83					
MN	19.83					
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: valenergy_herronkirk_1-21.db: field/well/stackmel/pass3 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in									



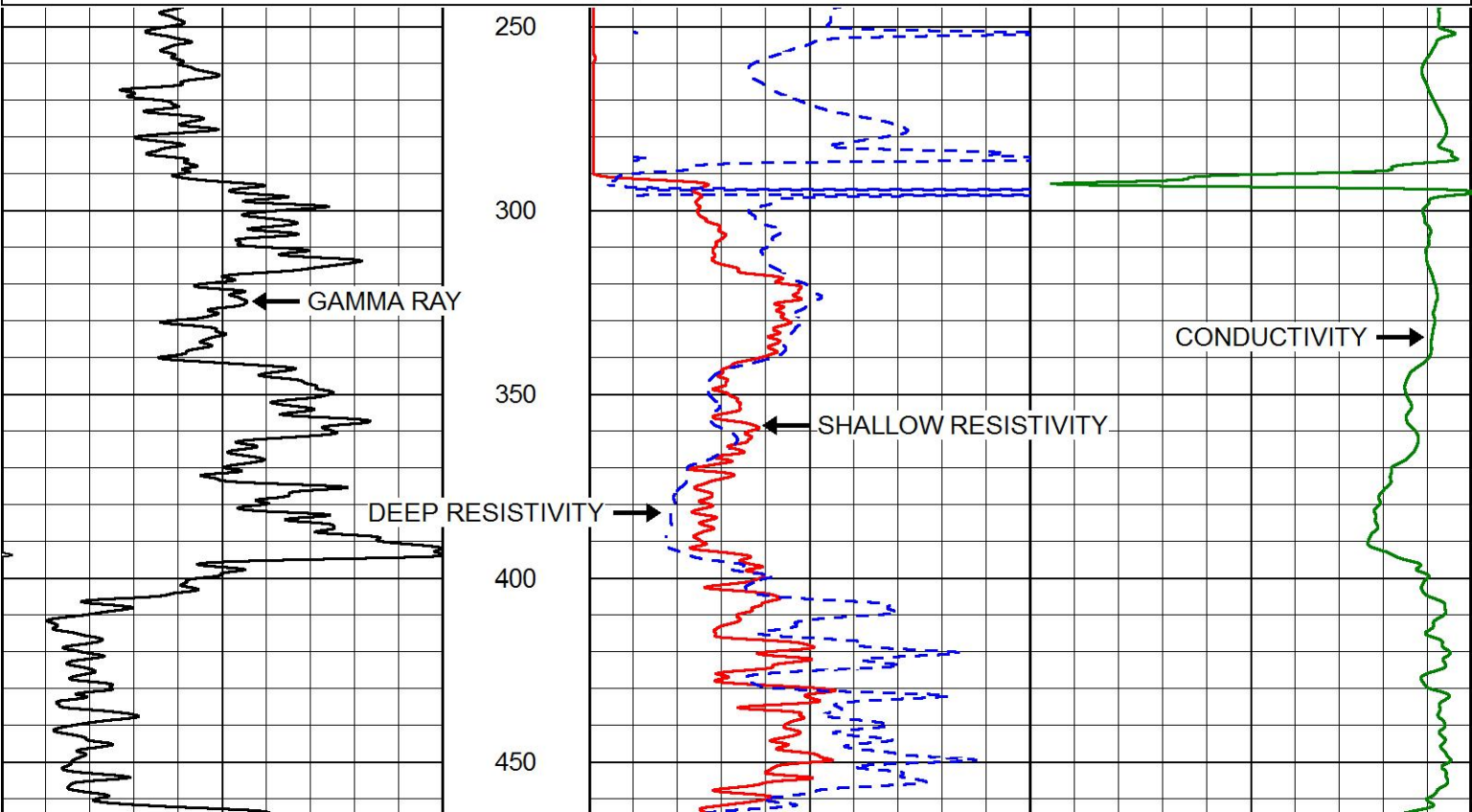
PIONEER
Pioneer Energy Services

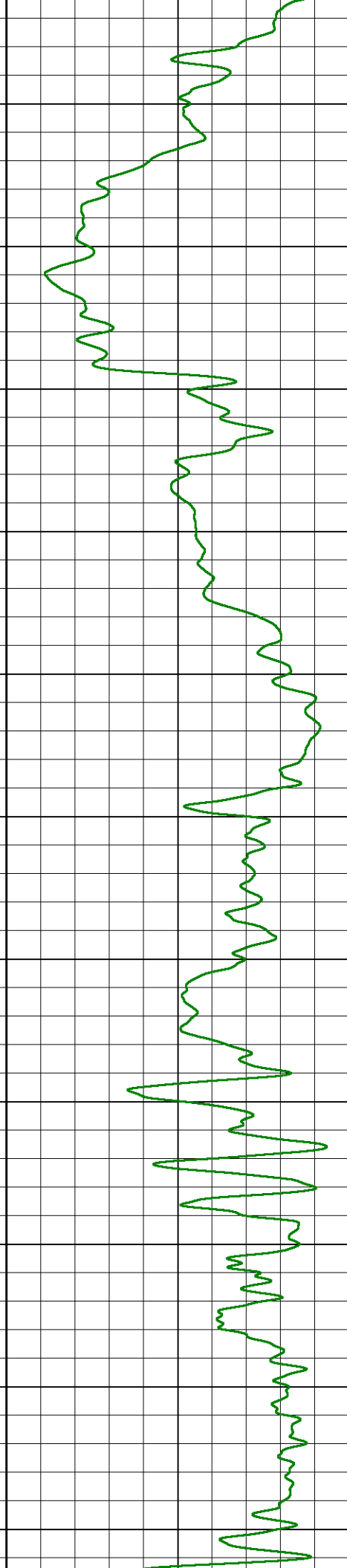
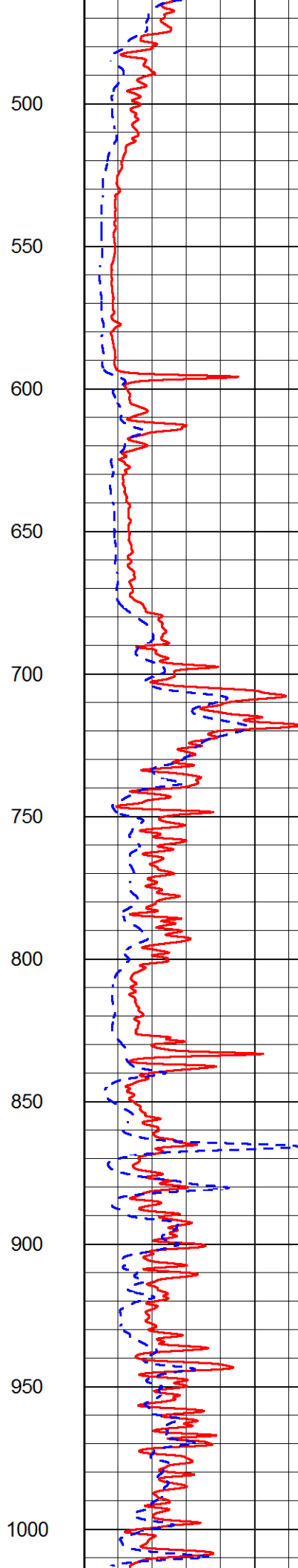
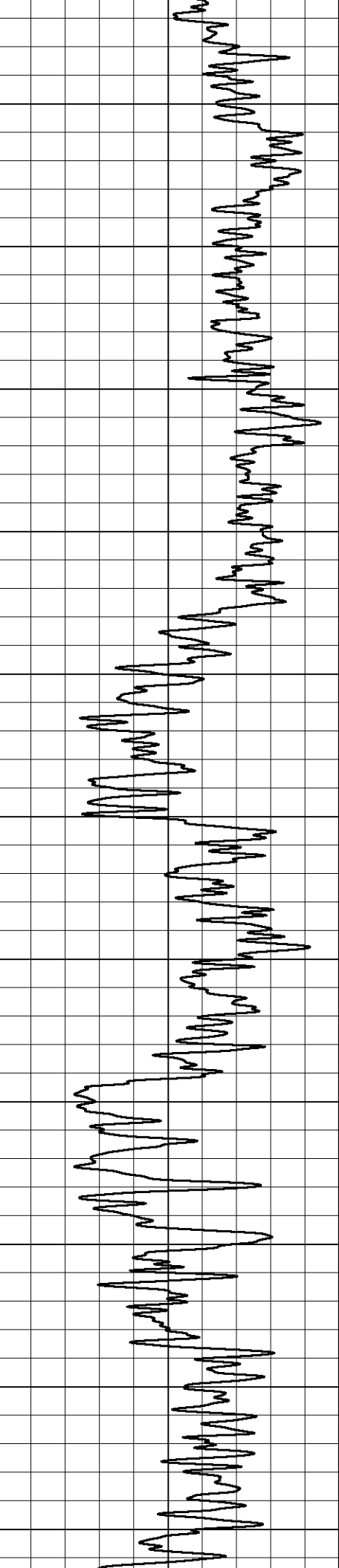
MAIN PASS

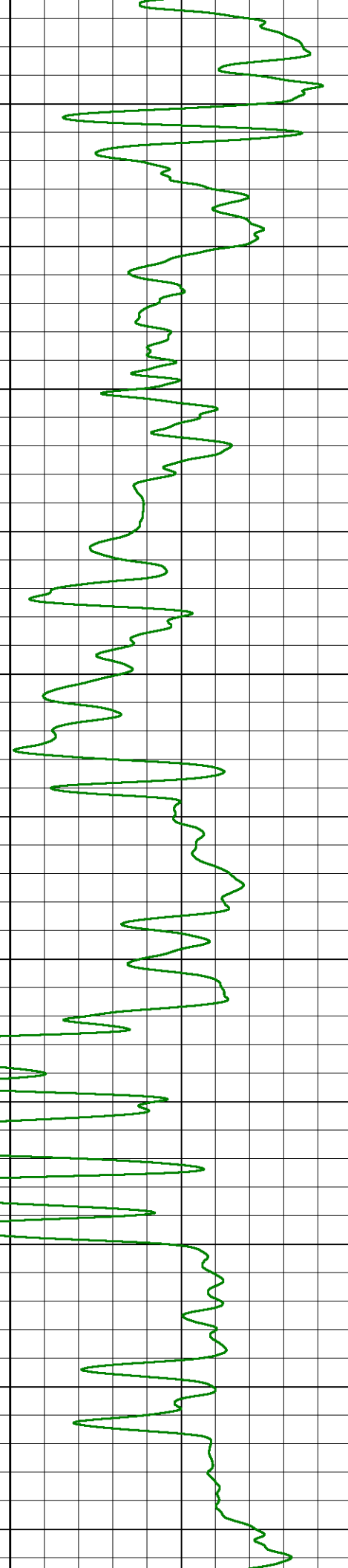
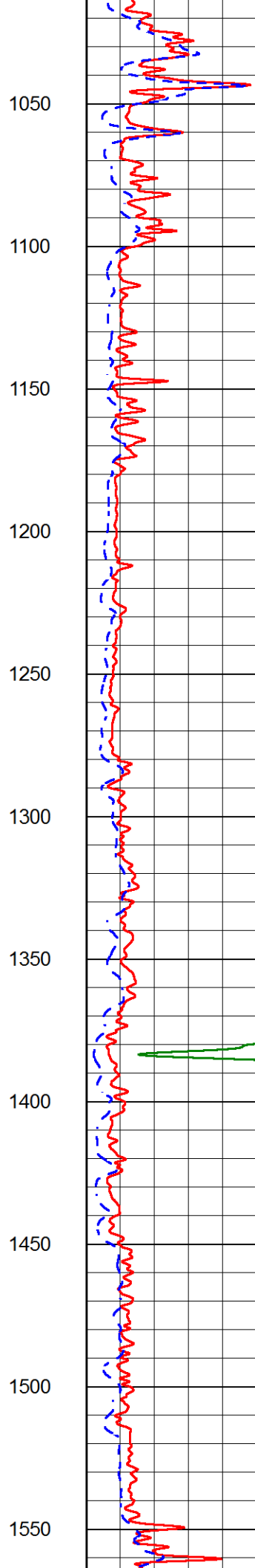
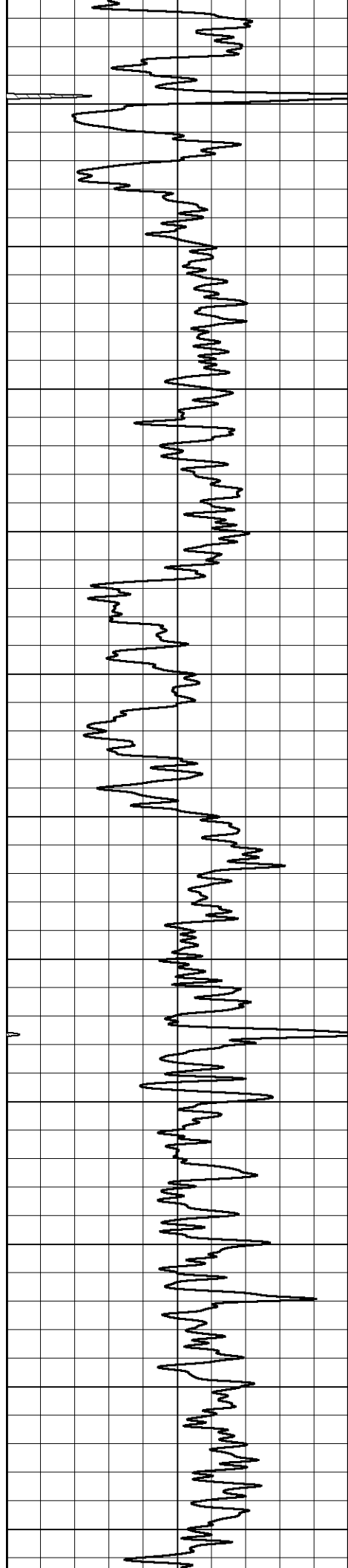
2" SCALE RESISTIVITY

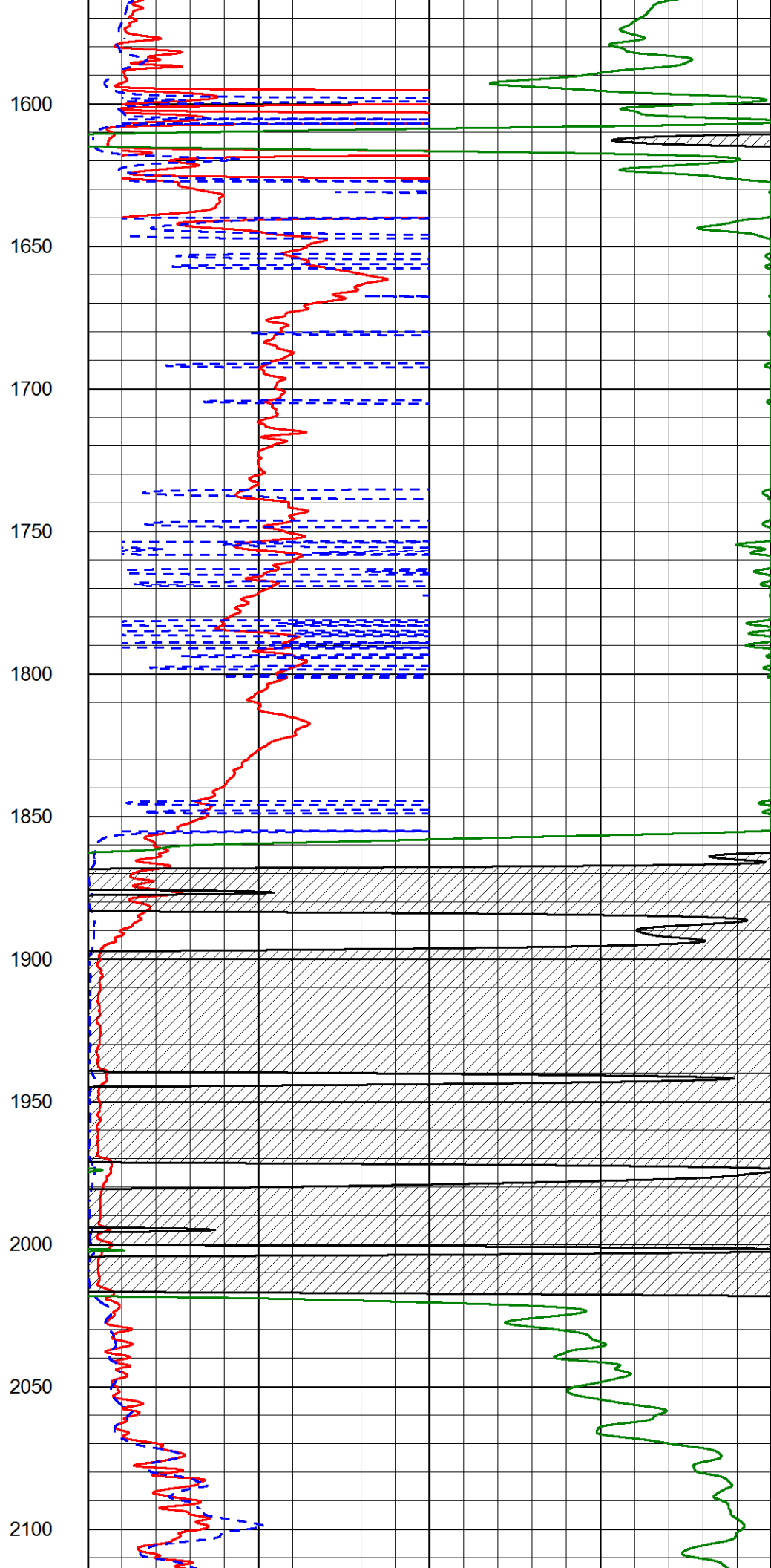
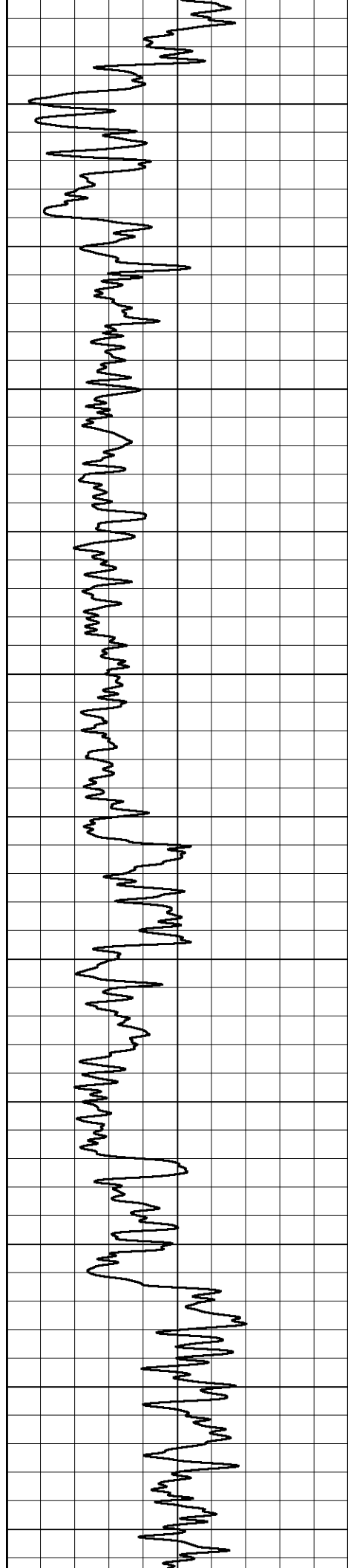
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Dataset Pathname	stackmel/pass3.2
Presentation Format	dil2in
Dataset Creation	Thu Oct 06 20:15:06 2016
Charted by	Depth in Feet scaled 1:600

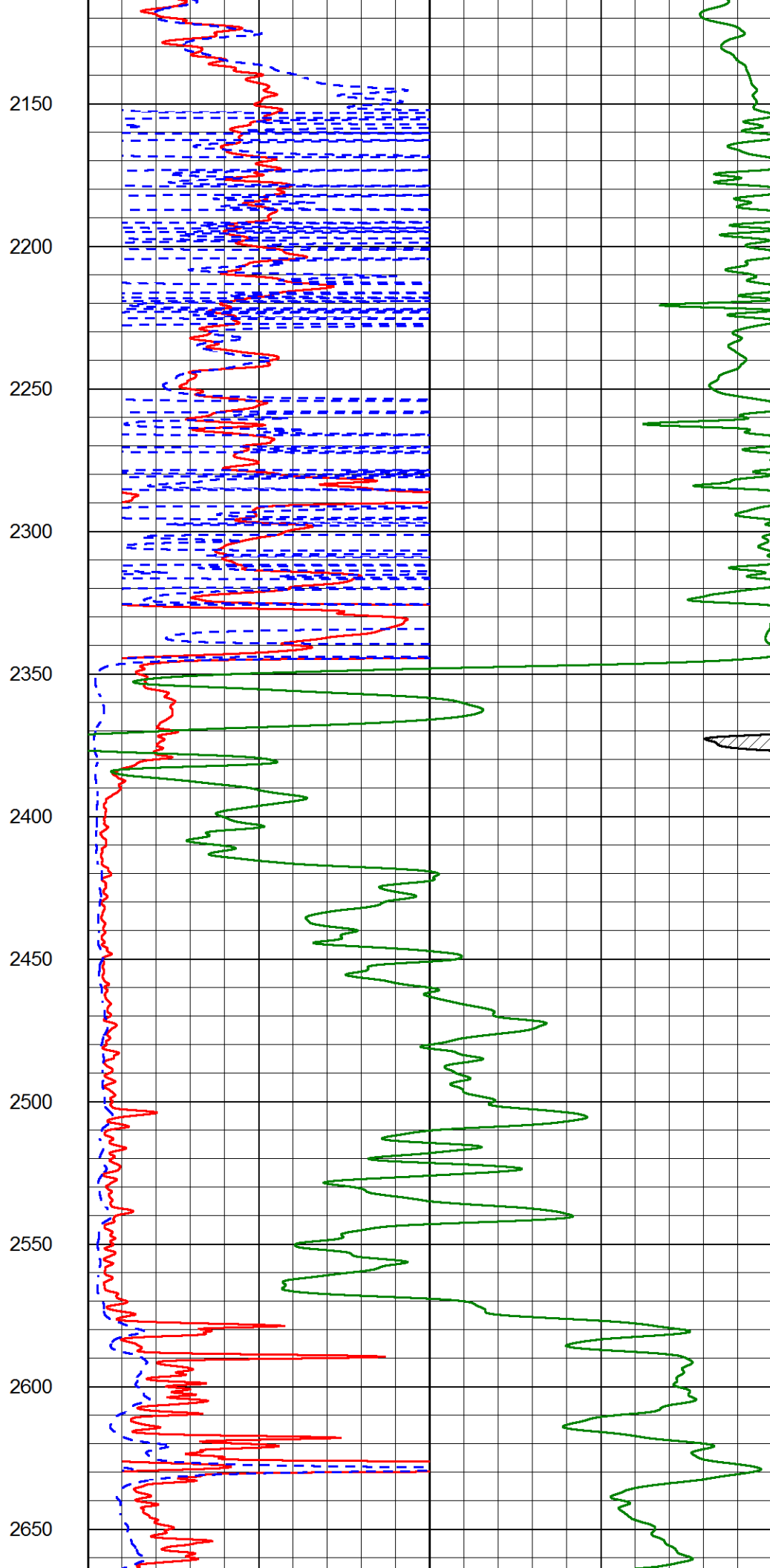
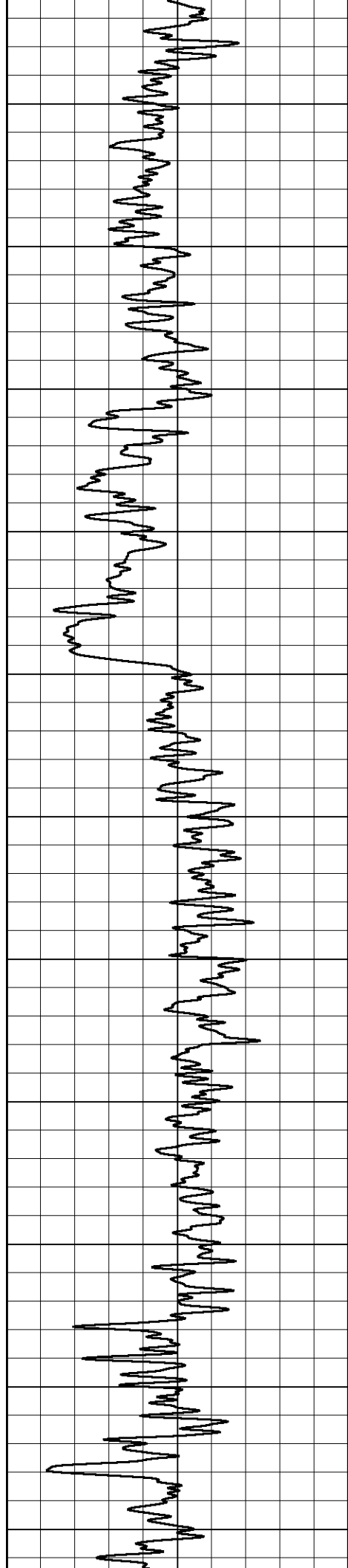
0	GAMMA RAY (GAPI)	150	1000	CONDUCTIVITY (mmho/m)	0
			SHALLOW RESISTIVITY		
			0	(Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			SHALLOW RESISTIVITY		
			50	(Ohm-m)	500
			DEEP RESISTIVITY		
			50	(Ohm-m)	500

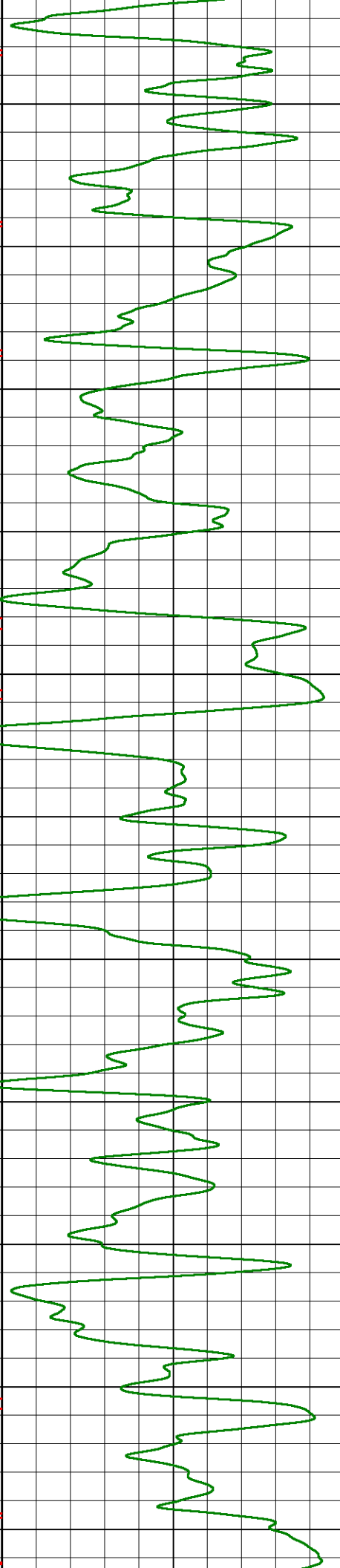
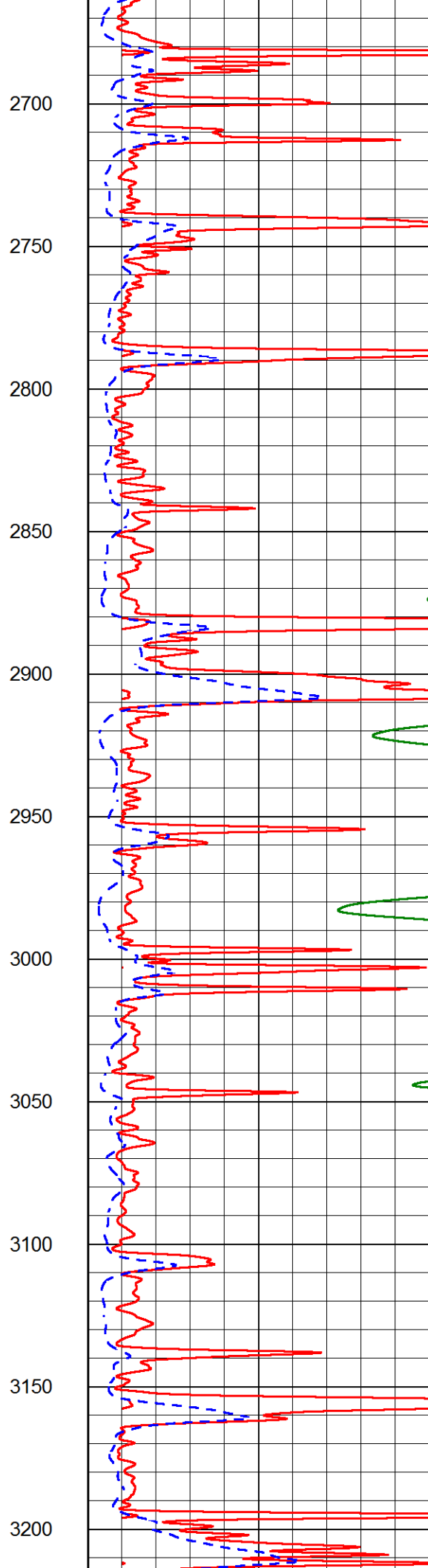
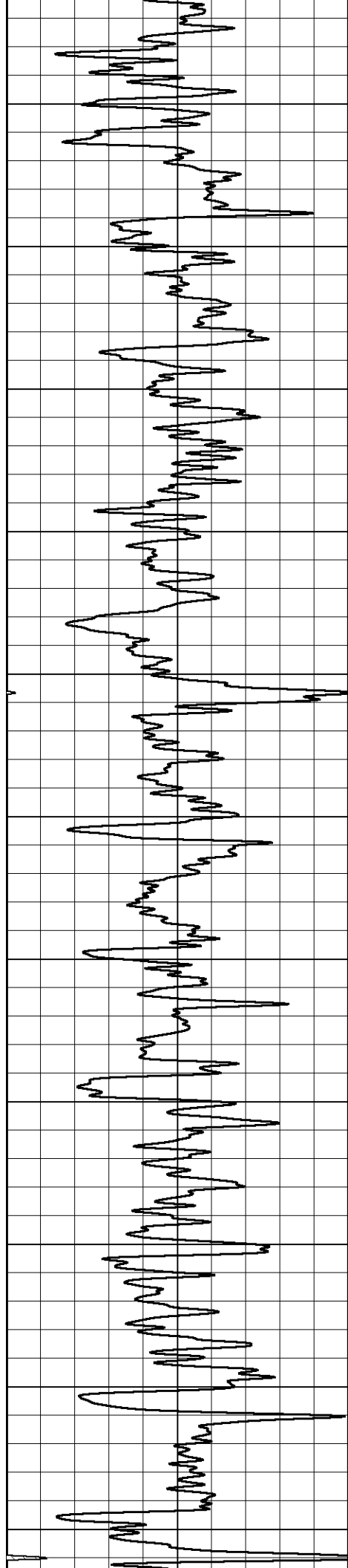


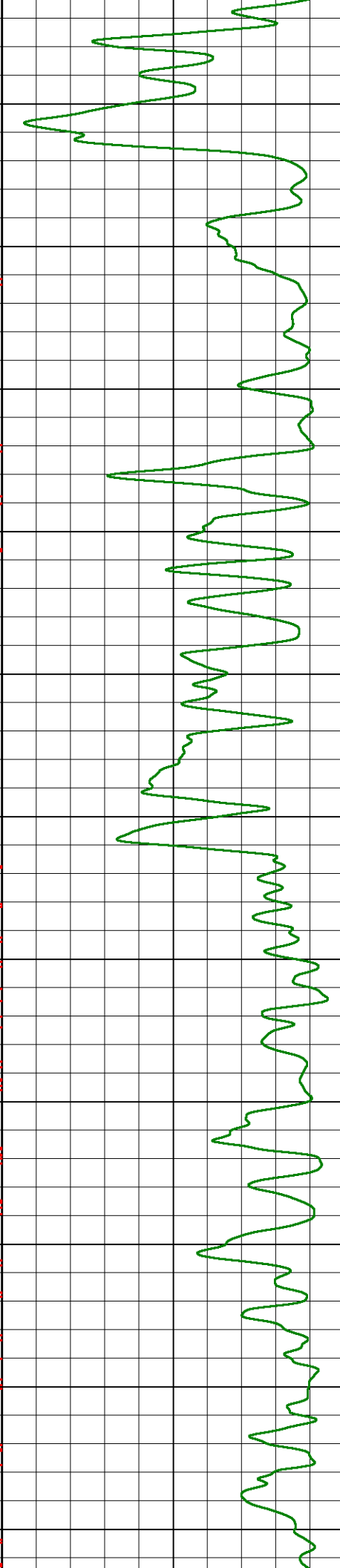
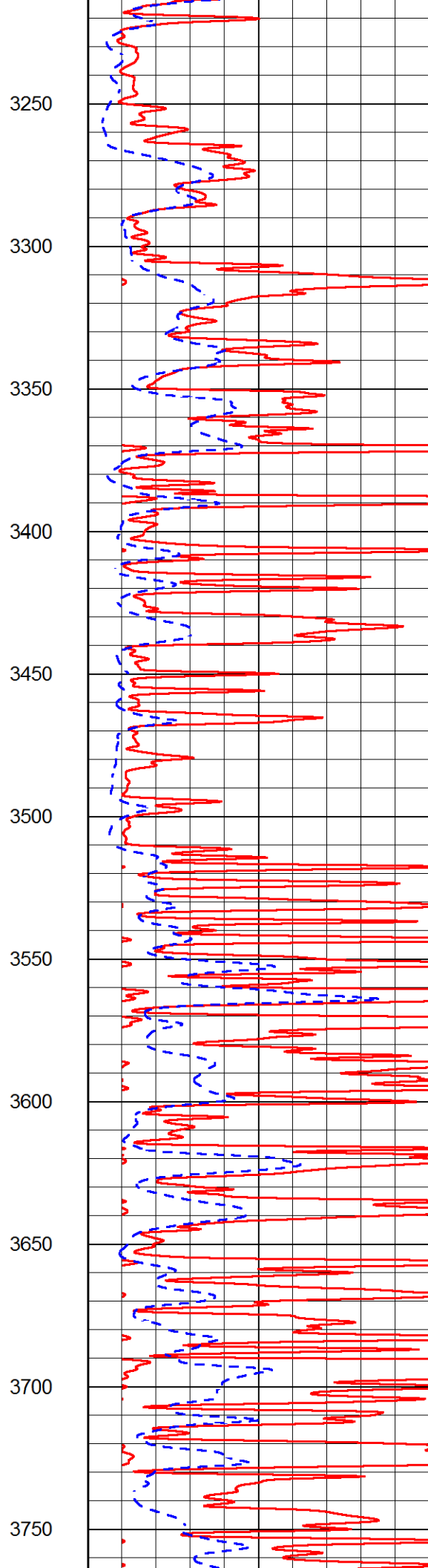
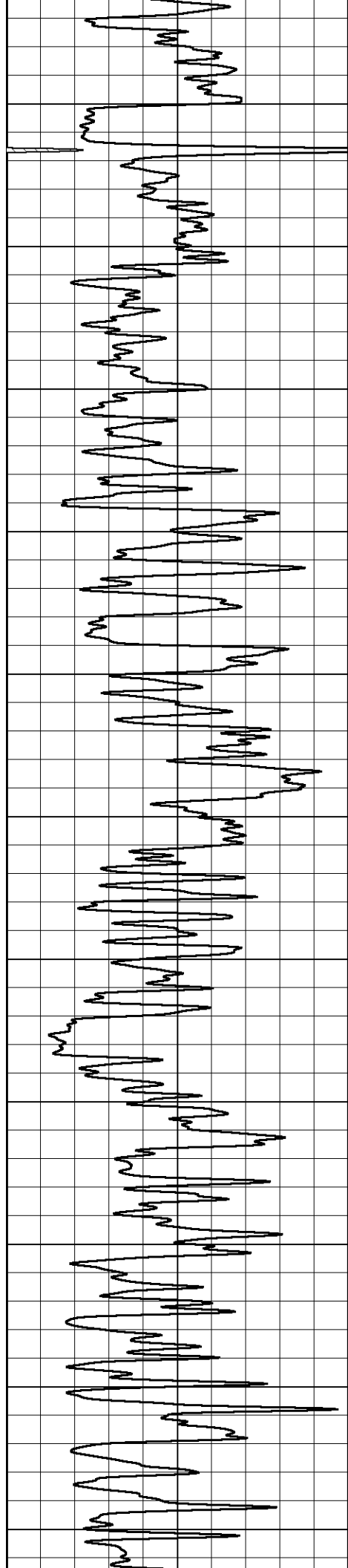


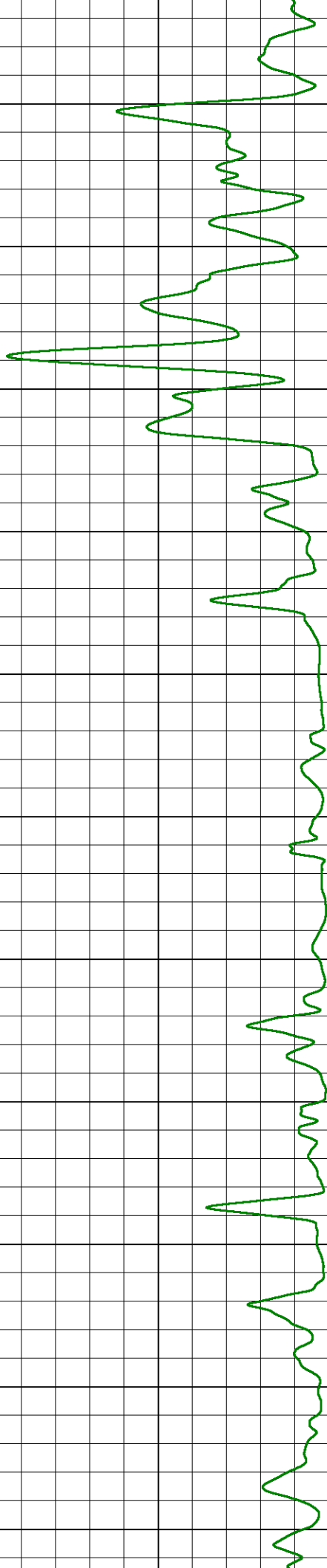
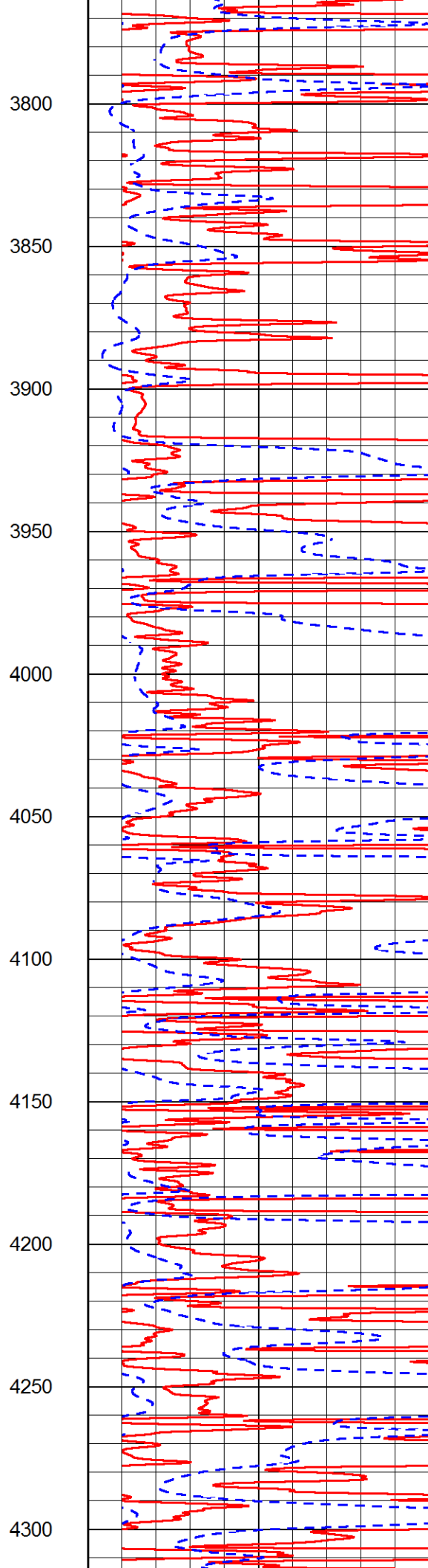
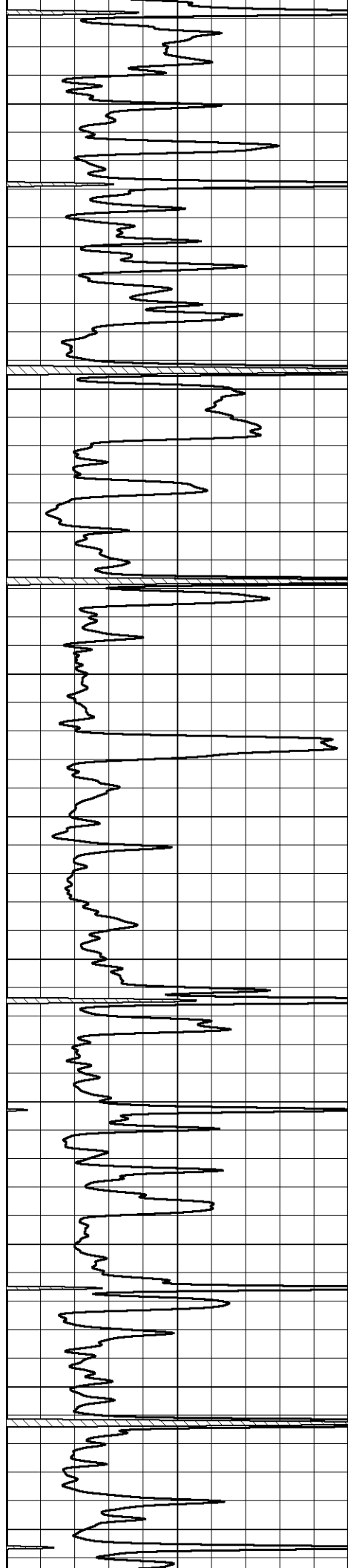


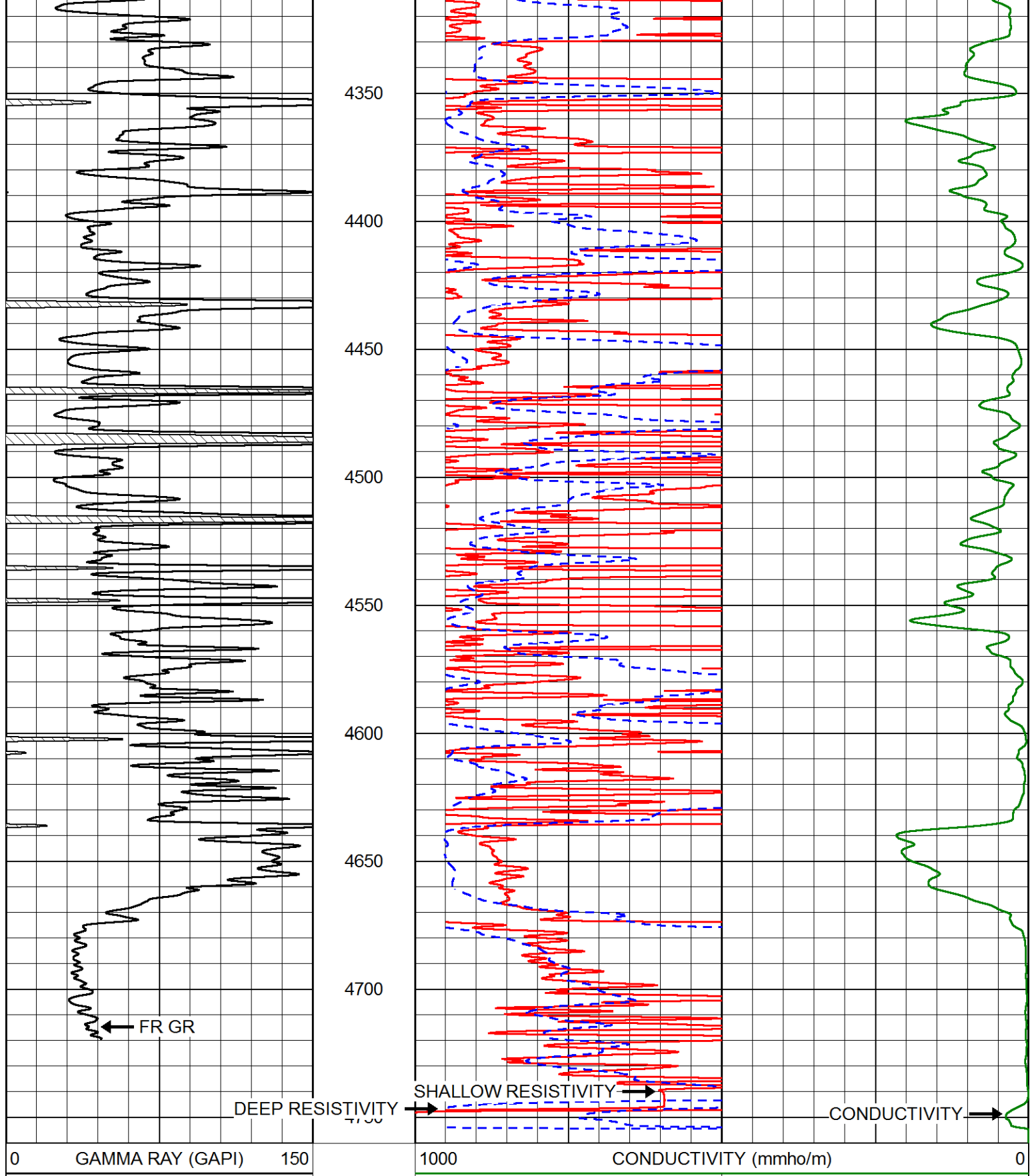












SHALLOW RESISTIVITY		
0	(Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
SHALLOW RESISTIVITY		
50	(Ohm-m)	500
DEEP RESISTIVITY		
50	(Ohm-m)	500

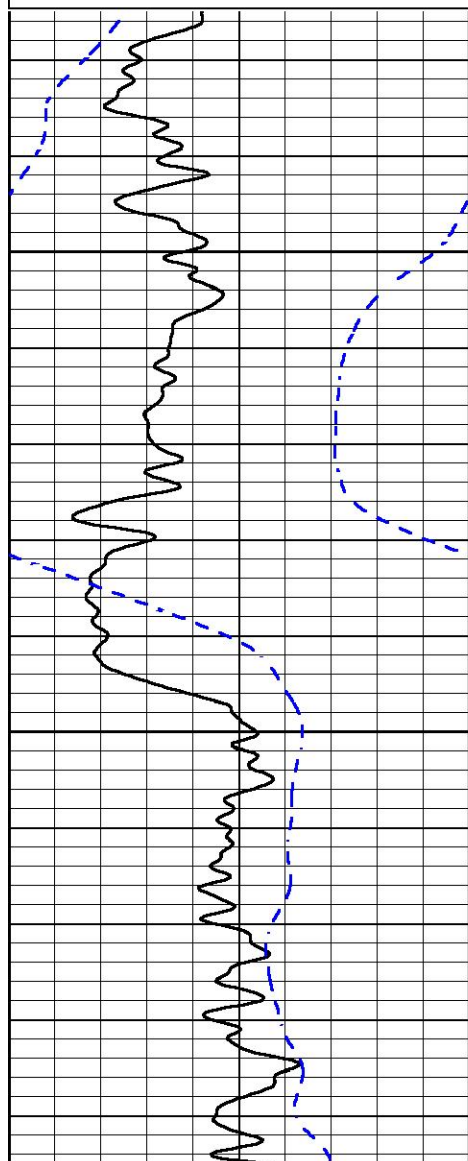
MAIN PASS

ANHYDRITE SECTION

Database File valenergy_herronkirk_1-21.db
 Dataset Pathname stackmel/pass3.4
 Presentation Format dil
 Dataset Creation Thu Oct 06 19:56:52 2016
 Charted by Depth in Feet scaled 1:240

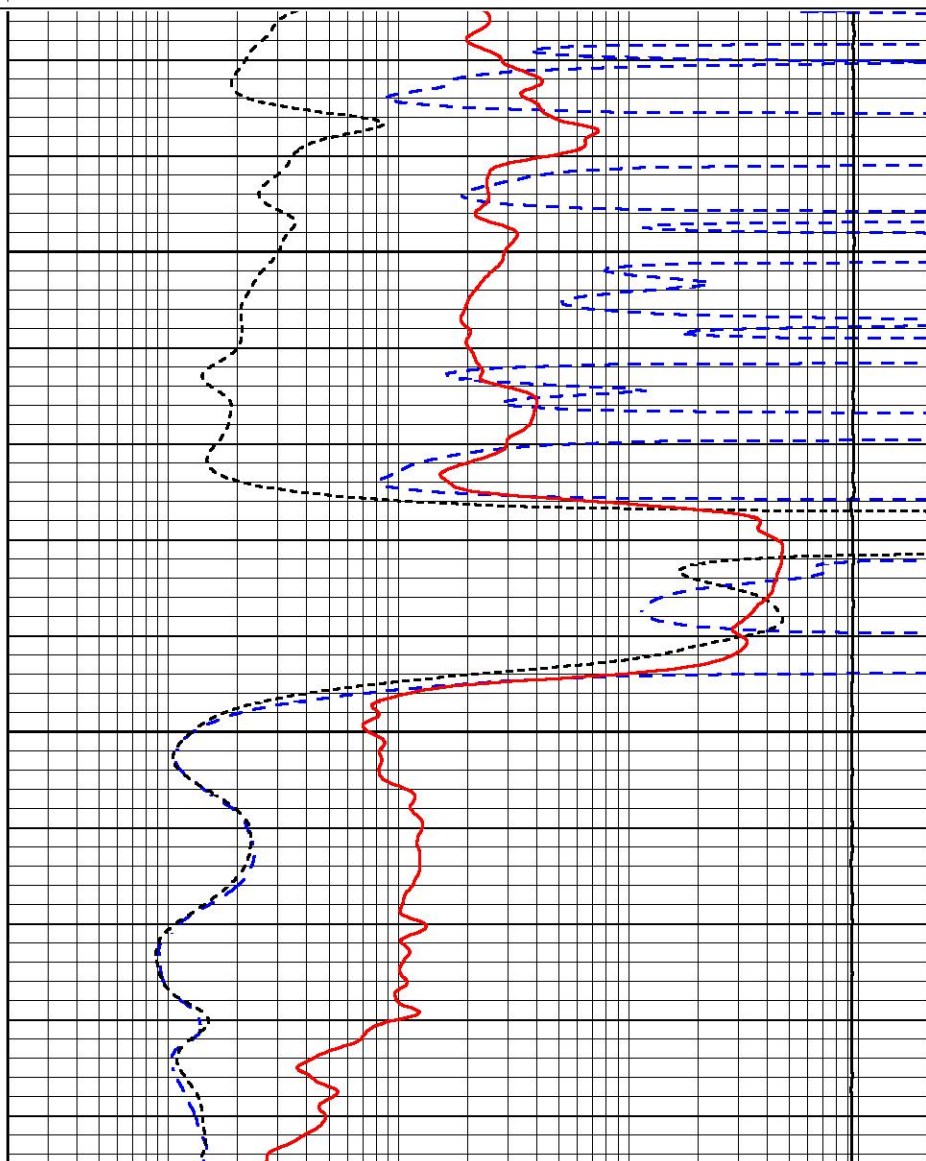
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

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



2300

2350



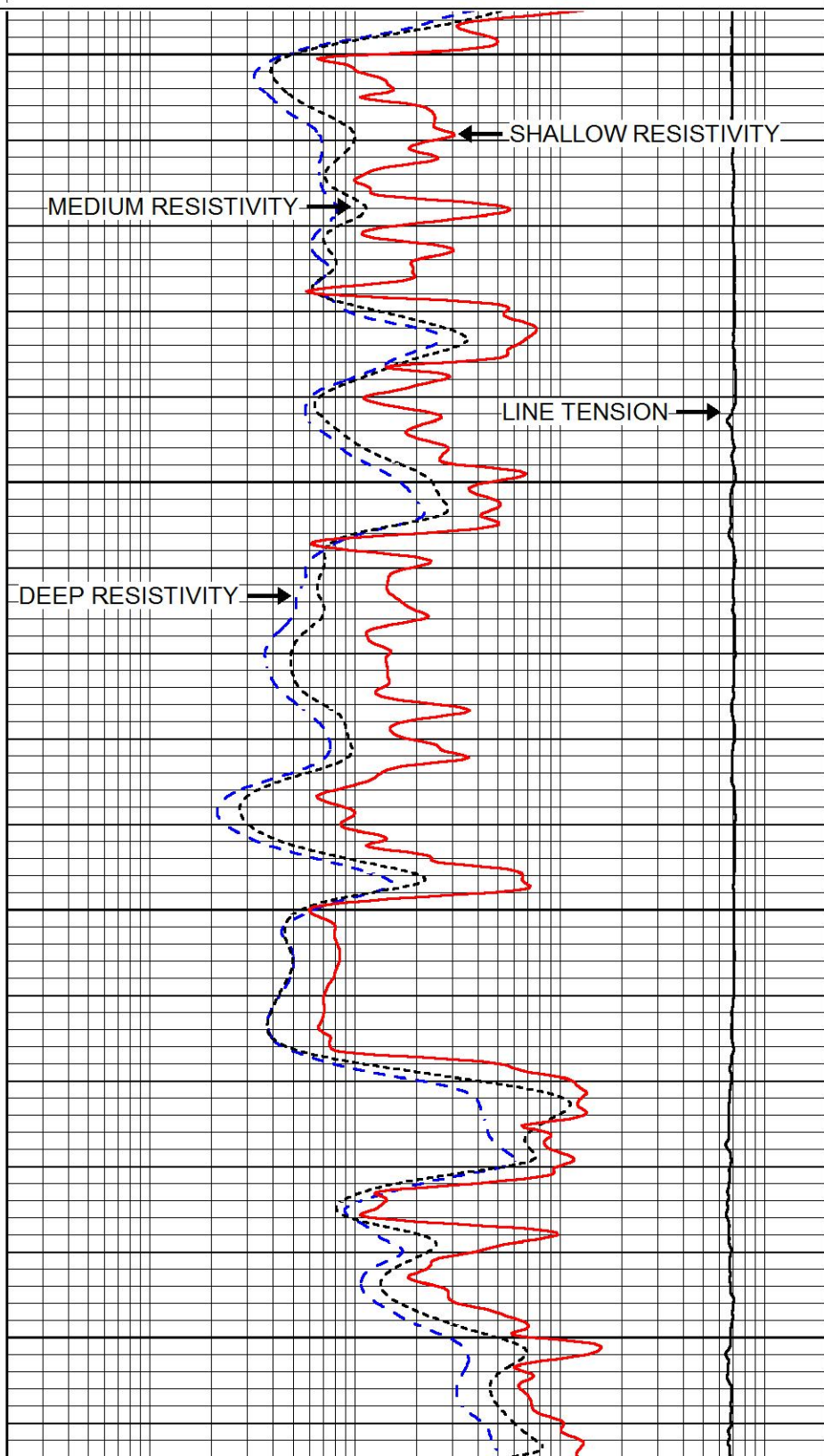
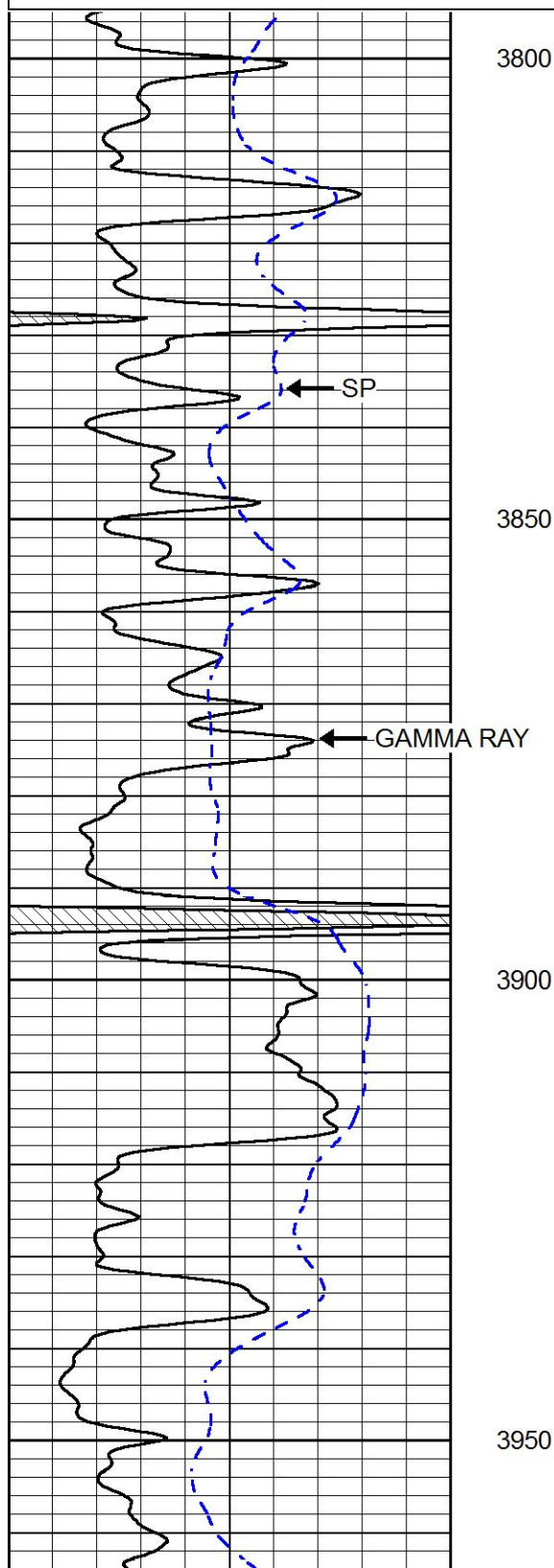
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

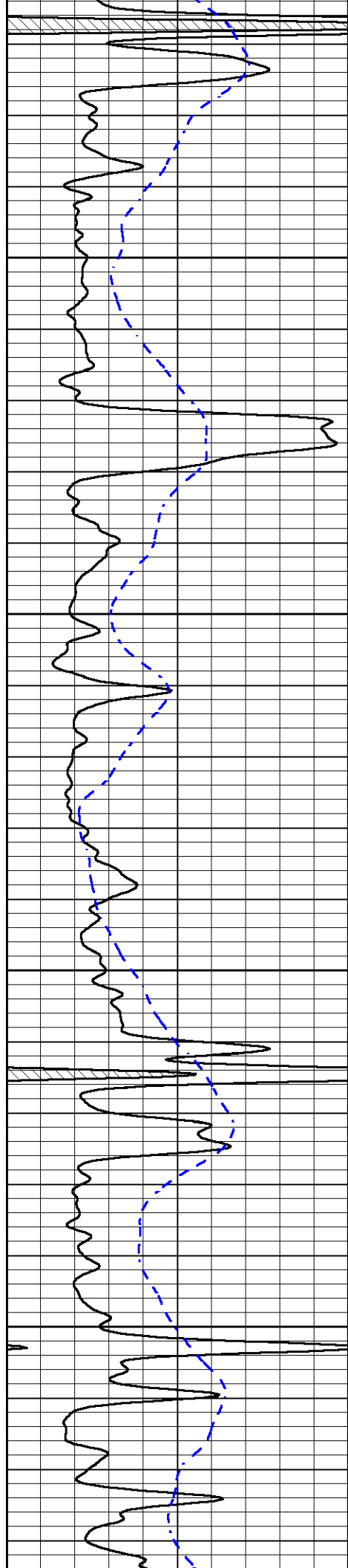
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	SHALLOW RESISTIVITY (Ohm-m)	2000
15000	LINE TENSION (lb)	0

Database File valenergy_herronkirk_1-21.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format dil
 Dataset Creation Thu Oct 06 19:38:35 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



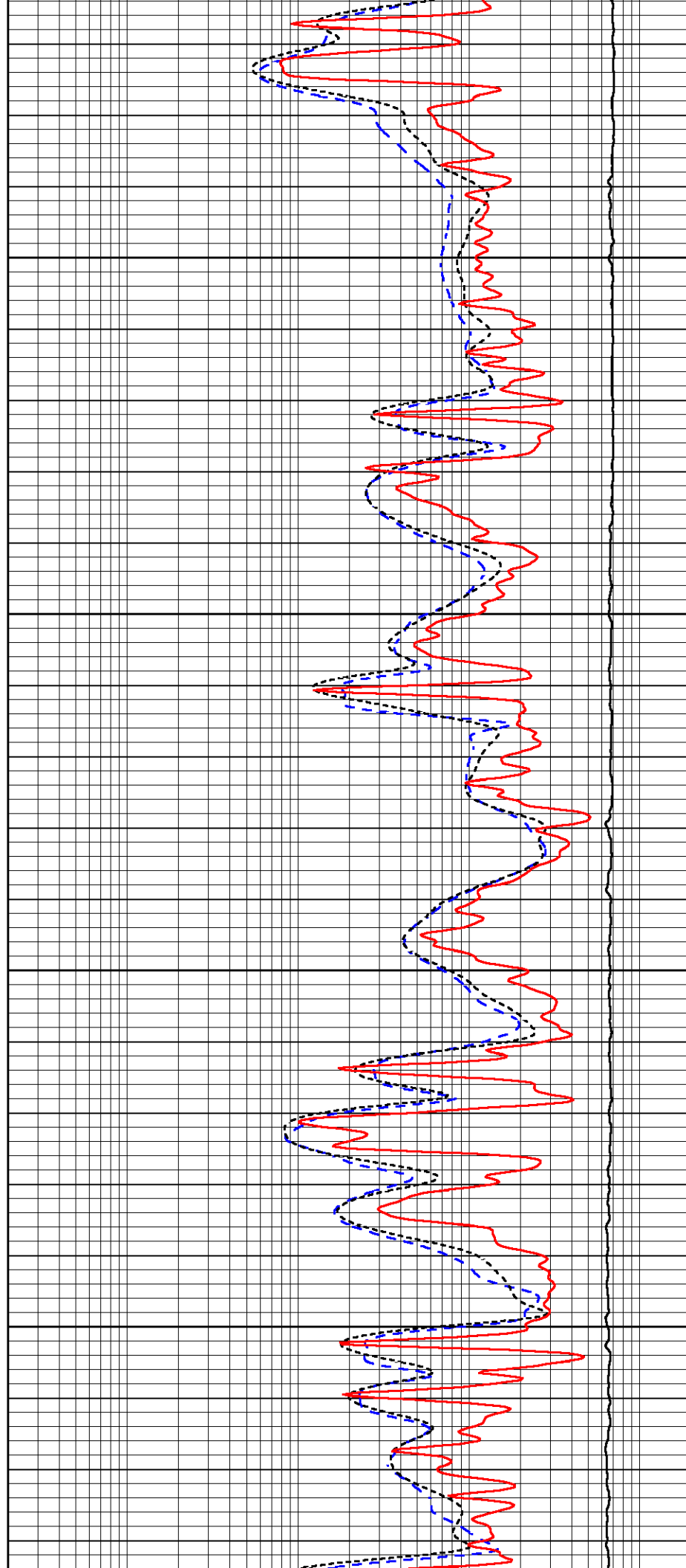


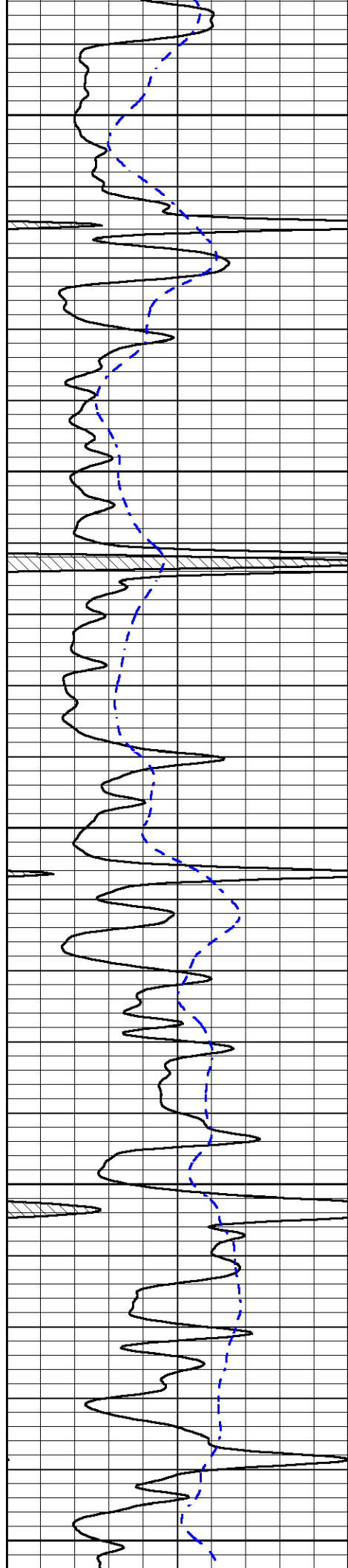
4000

4050

4100

4150





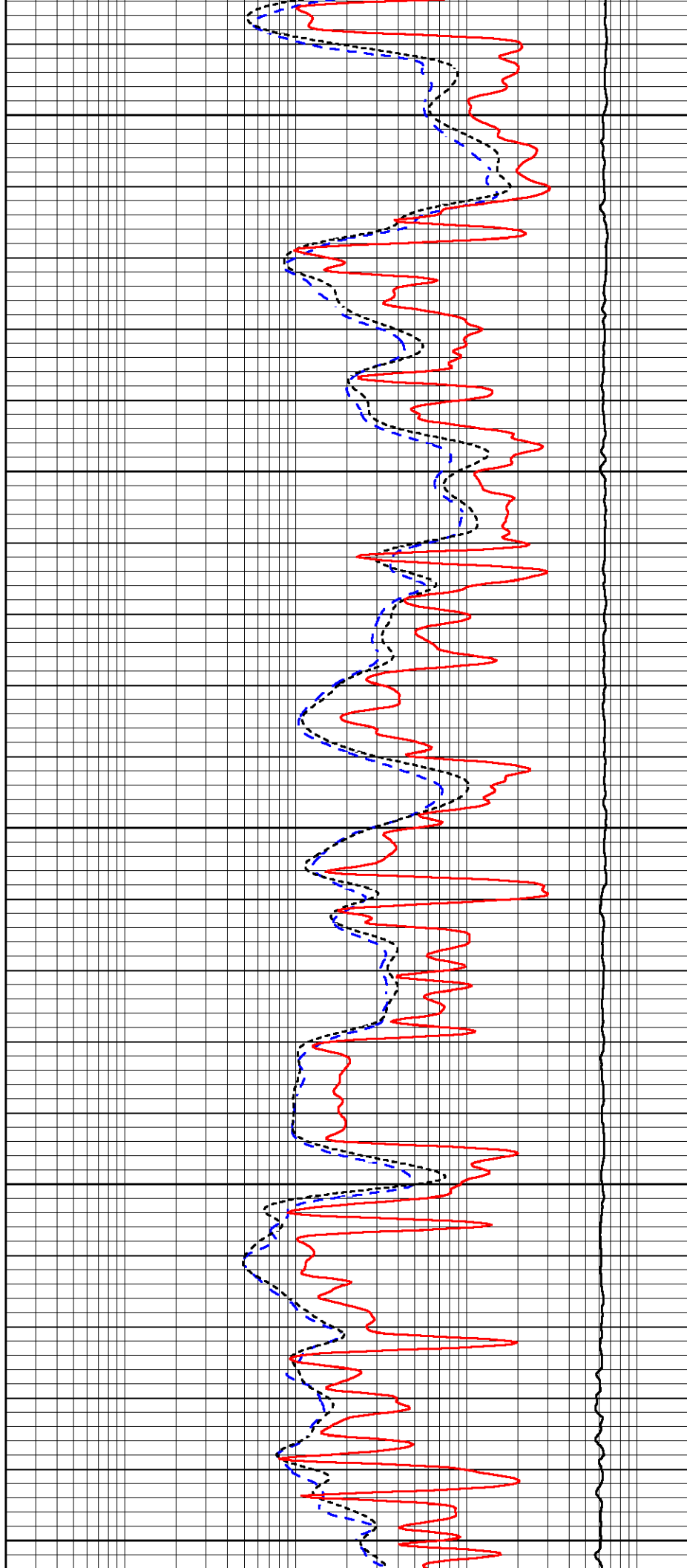
4200

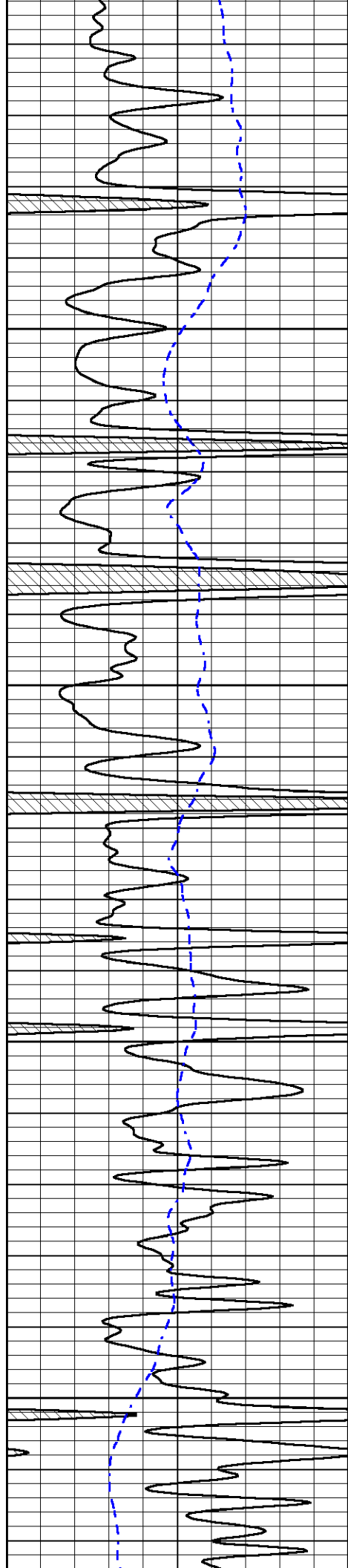
4250

4300

4350

4400



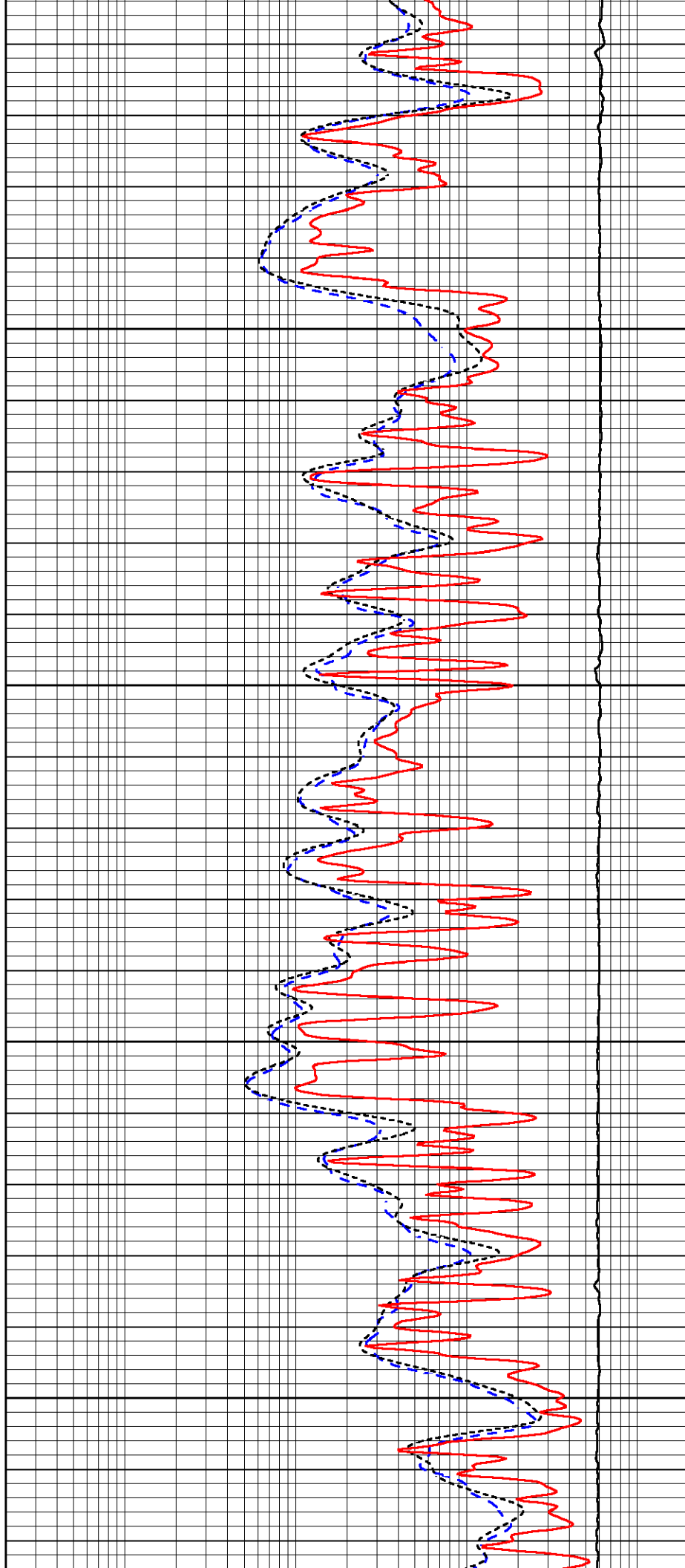


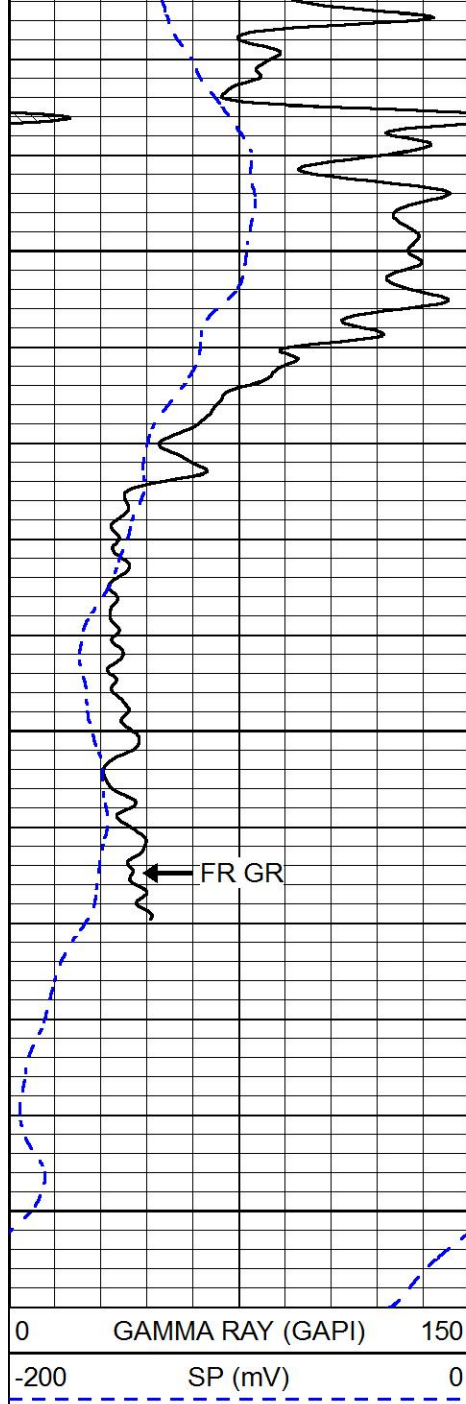
4450

4500

4550

4600

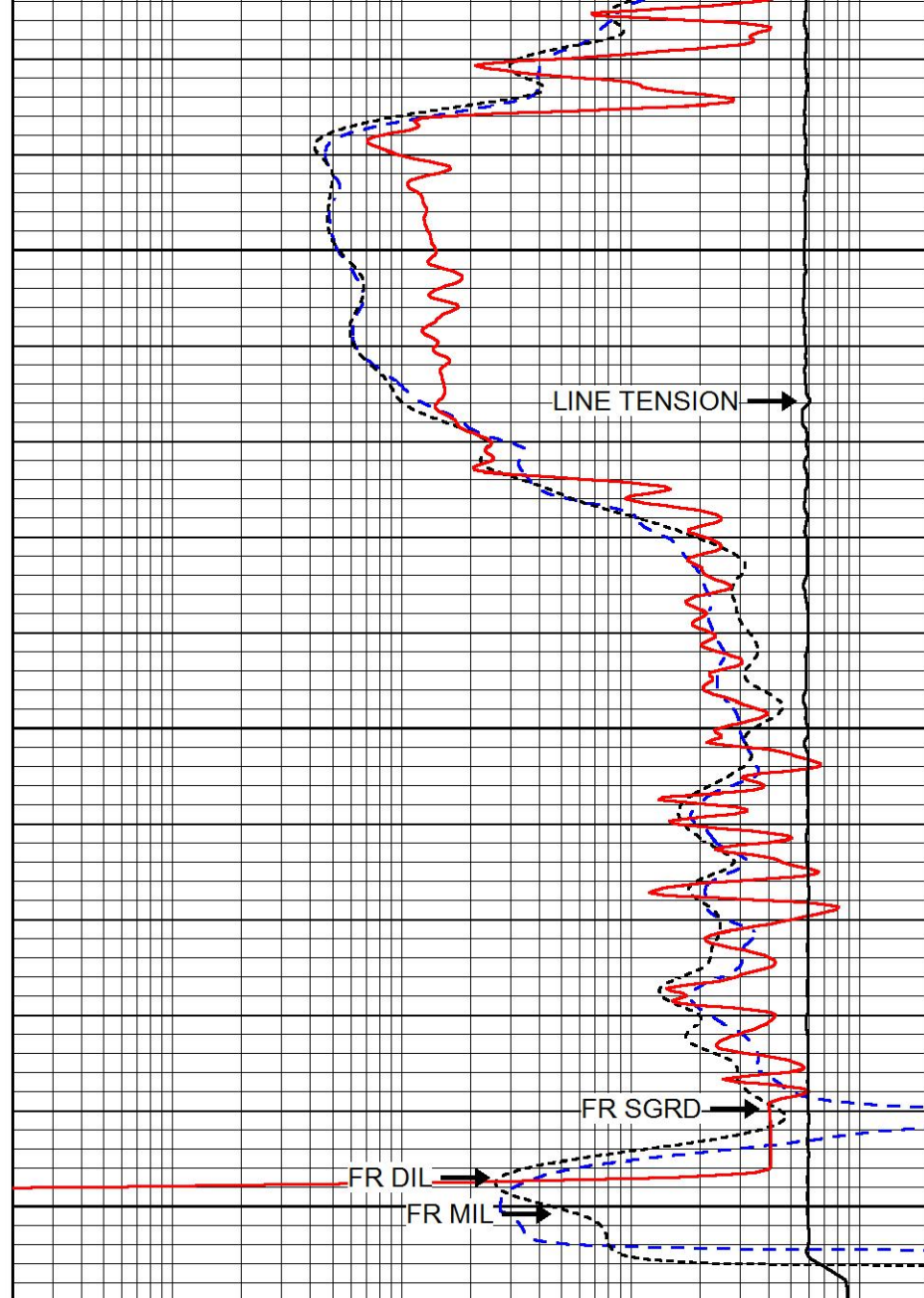




4650

4700

4750



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

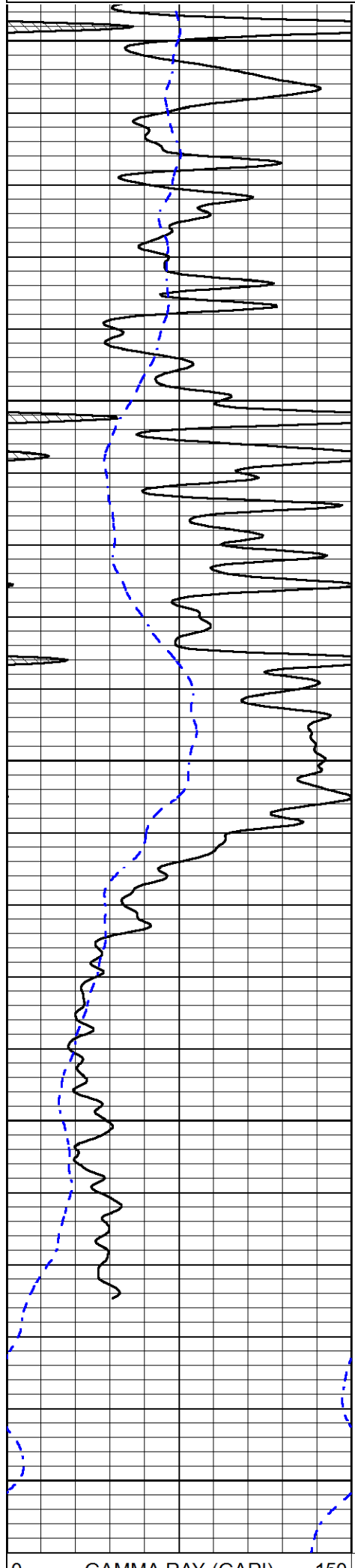


REPEAT SECTION

Database File valenergy_herronkirk_1-21.db
 Dataset Pathname stackmel/pass2.1
 Presentation Format dil
 Dataset Creation Thu Oct 06 19:46:28 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



4550

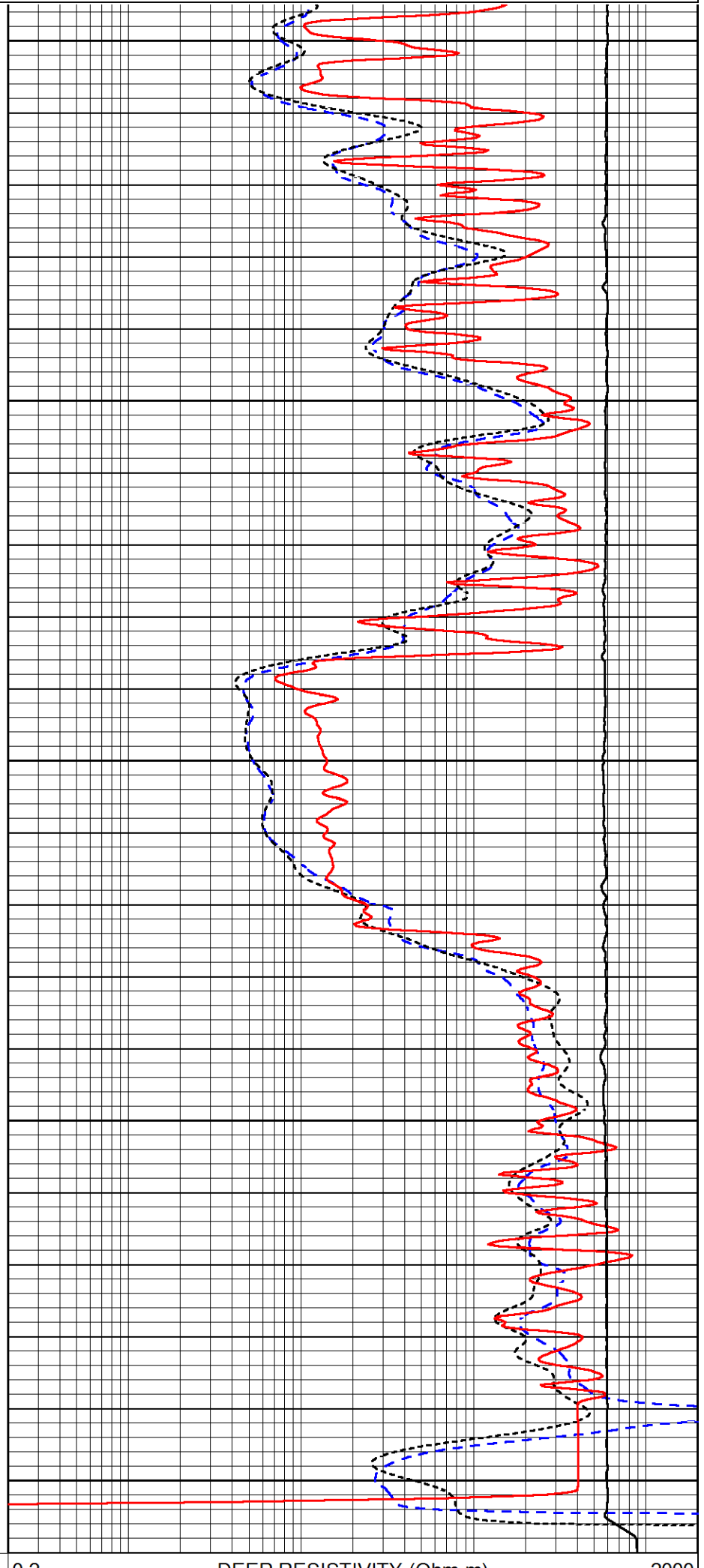
4600

4650

4700

4750

0 GAMMA RAY (GAPI) 150



0.2 DEEP RESISTIVITY (Ohm-m) 2000

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

Calibration Report	
Database File	valenergy_herronkirk_1-21.db
Dataset Pathname	stackmel/pass2
Dataset Creation	Thu Oct 06 18:46:48 2016

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Aug 30 16:23:58 2016

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:	71-914-M&W
Source / Verifier:	/
Master Calibration Performed:	Mon Oct 03 08:53:06 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
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Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Sat Oct 1 10:01:53 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:	Fri Sep 30 22:06:47 2016

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



Company	VAL ENERGY, INC.
Well	HERRON KIRK UNIT NO. 1-21
Field	WILDCAT
County	SCOTT
State	KANSAS