



DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: 5 1/2" CASING USED FOR ANNULAR HOLE VOLUME

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

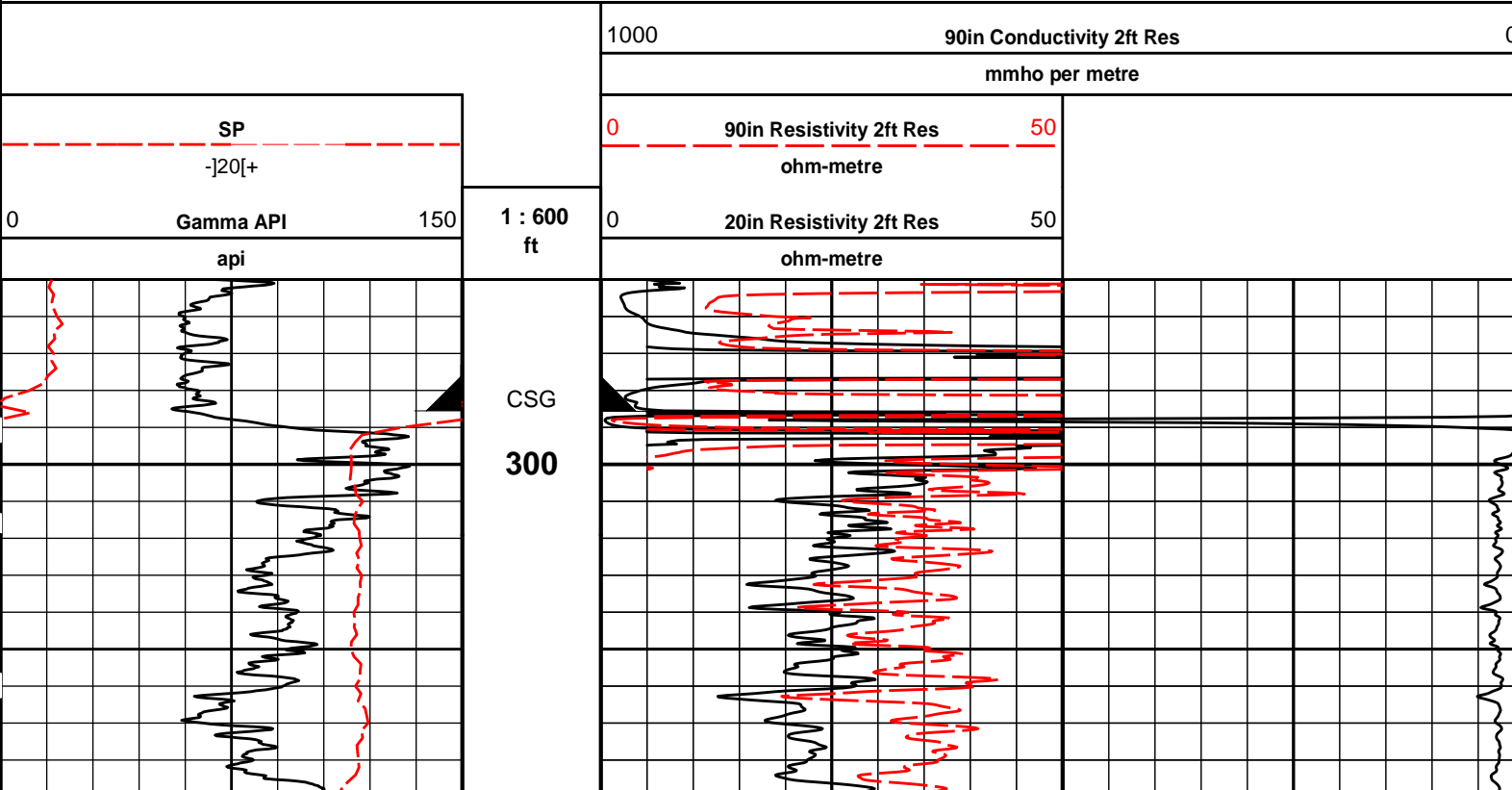
HALLIBURTON

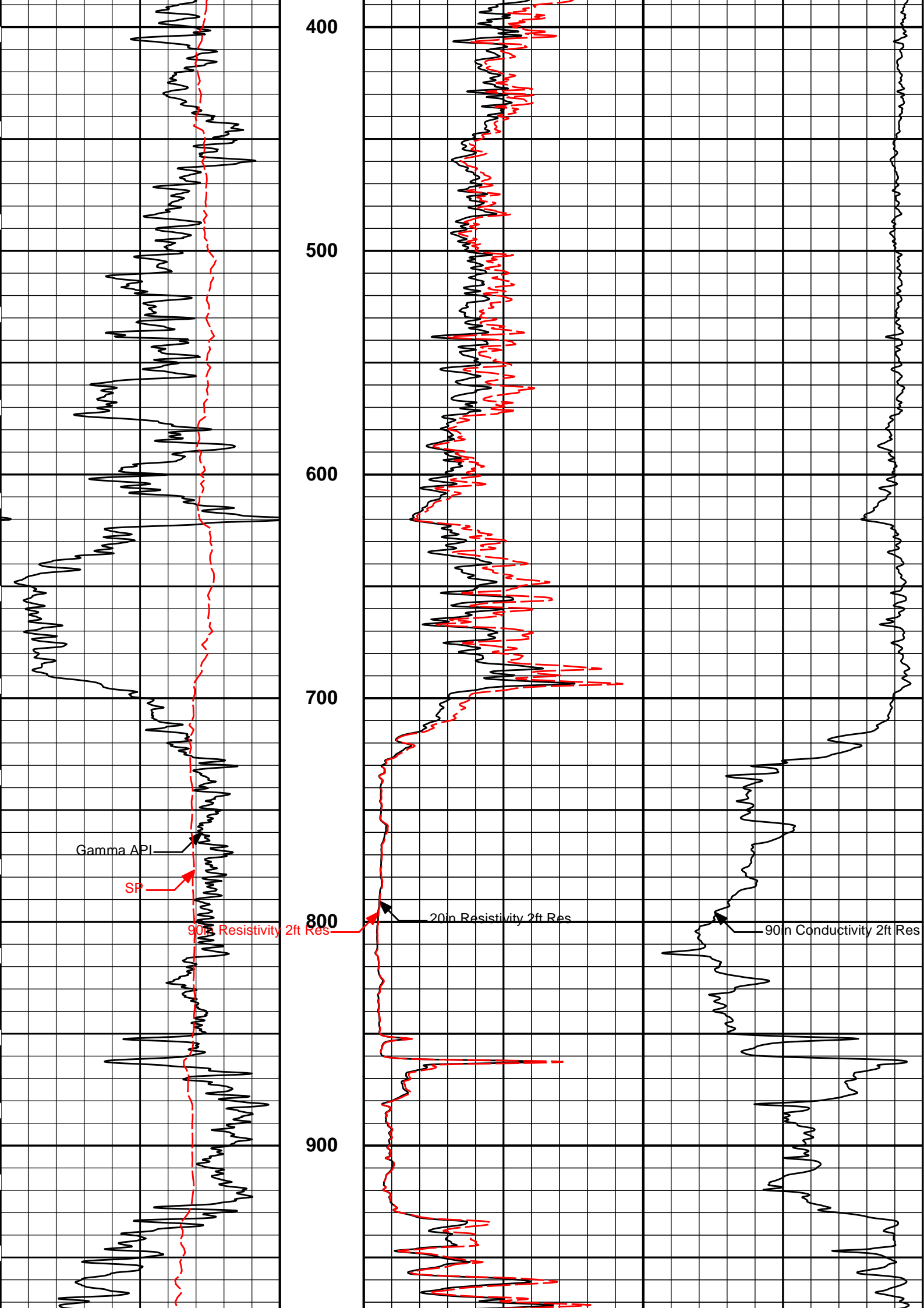
**HALLIBURTON**

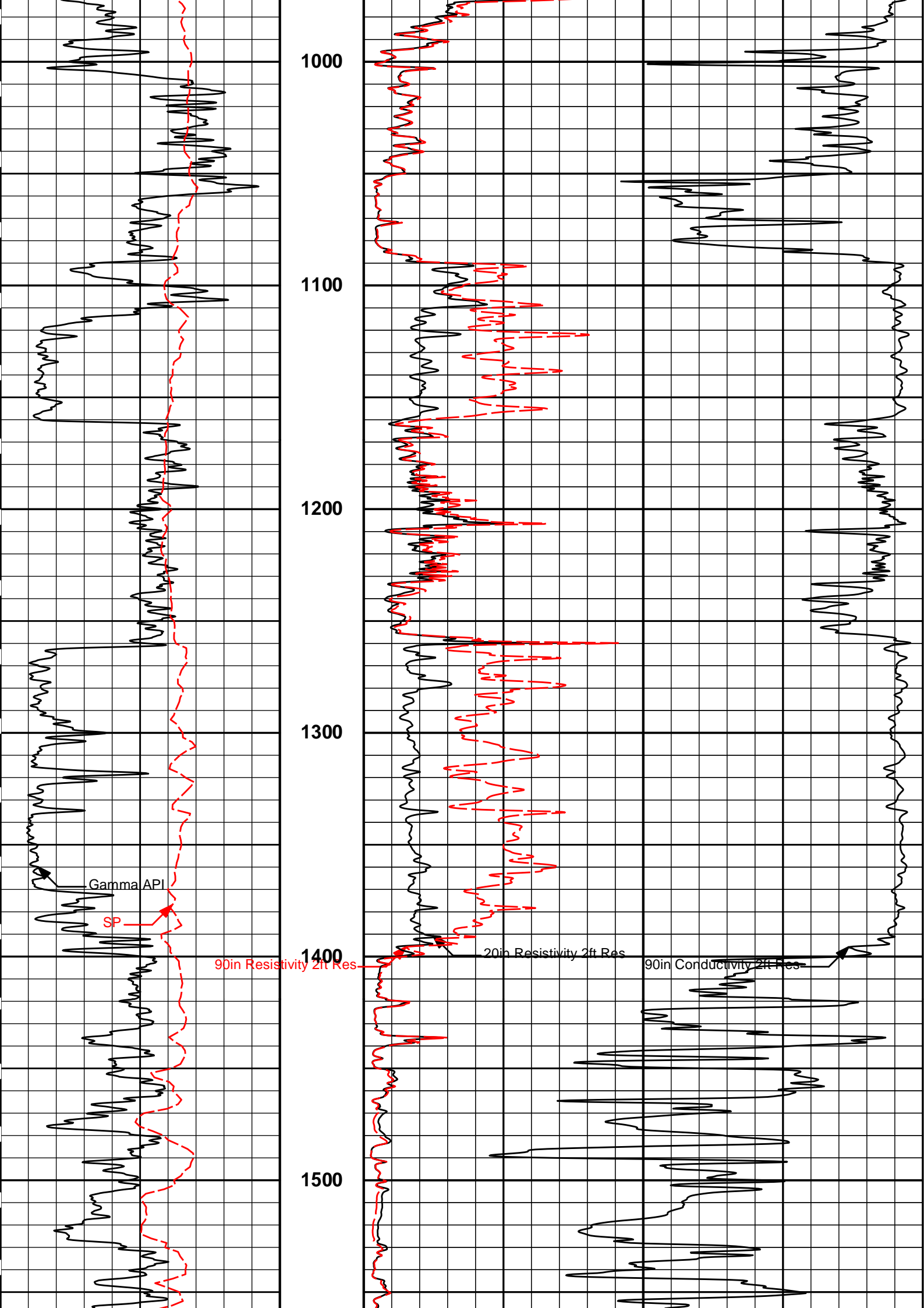
Plot Time: 09-Nov-19 11:05:50  
 Plot Range: 250 ft to 4403.67 ft  
 Data: RUSSELL\_NEWMANWell Based\MAIN\_MERGE\  
 Plot File: \\-LOCAL-RUSSELL\_NEWMAN\0001 GTET-DSN-SDL-ACRTVACRTVACRT\_2\_main

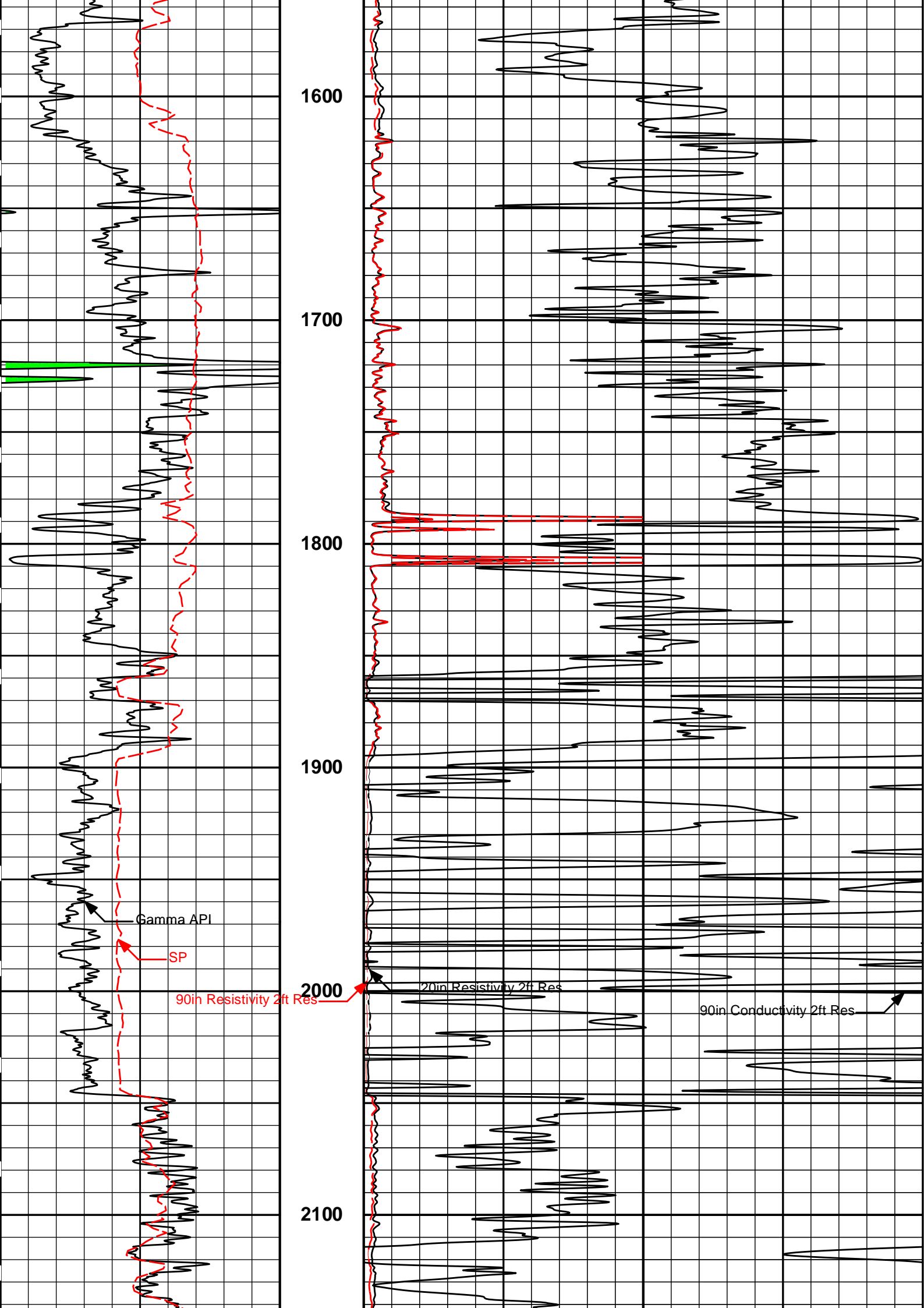
## 2 INCH MAIN LOG

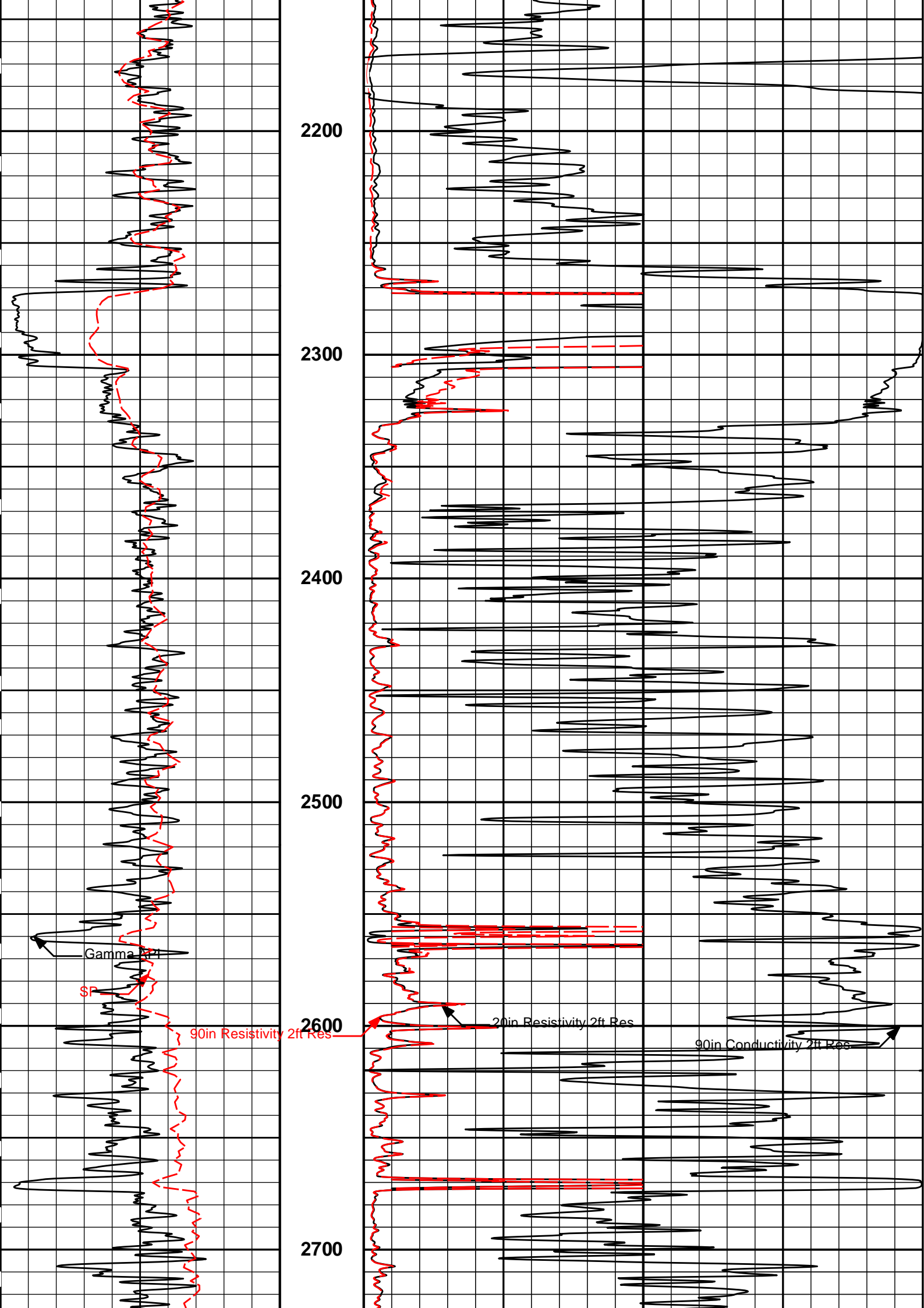
# 2 INCH MAIN LOG

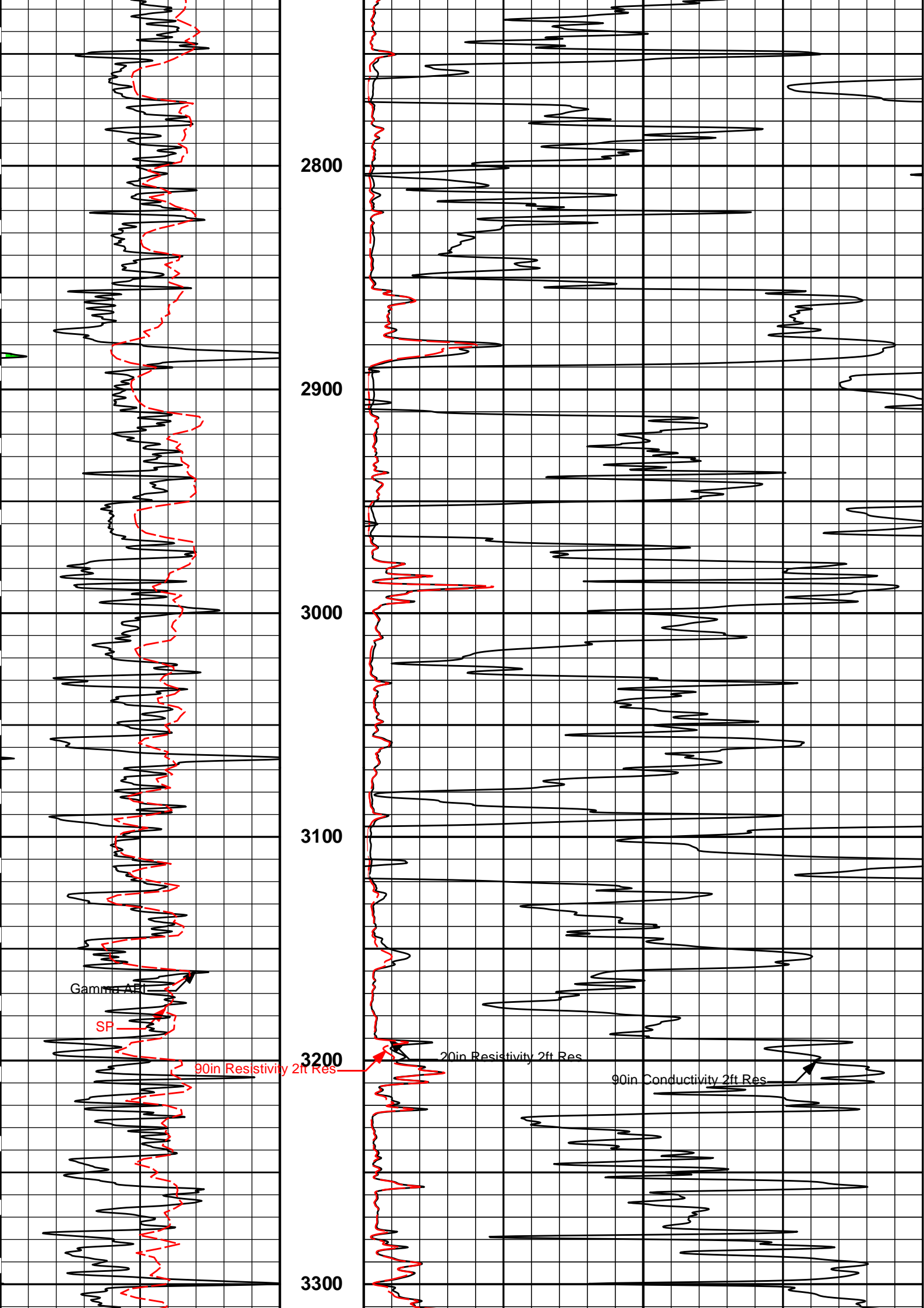












2800

2900

3000

3100

3200

3300

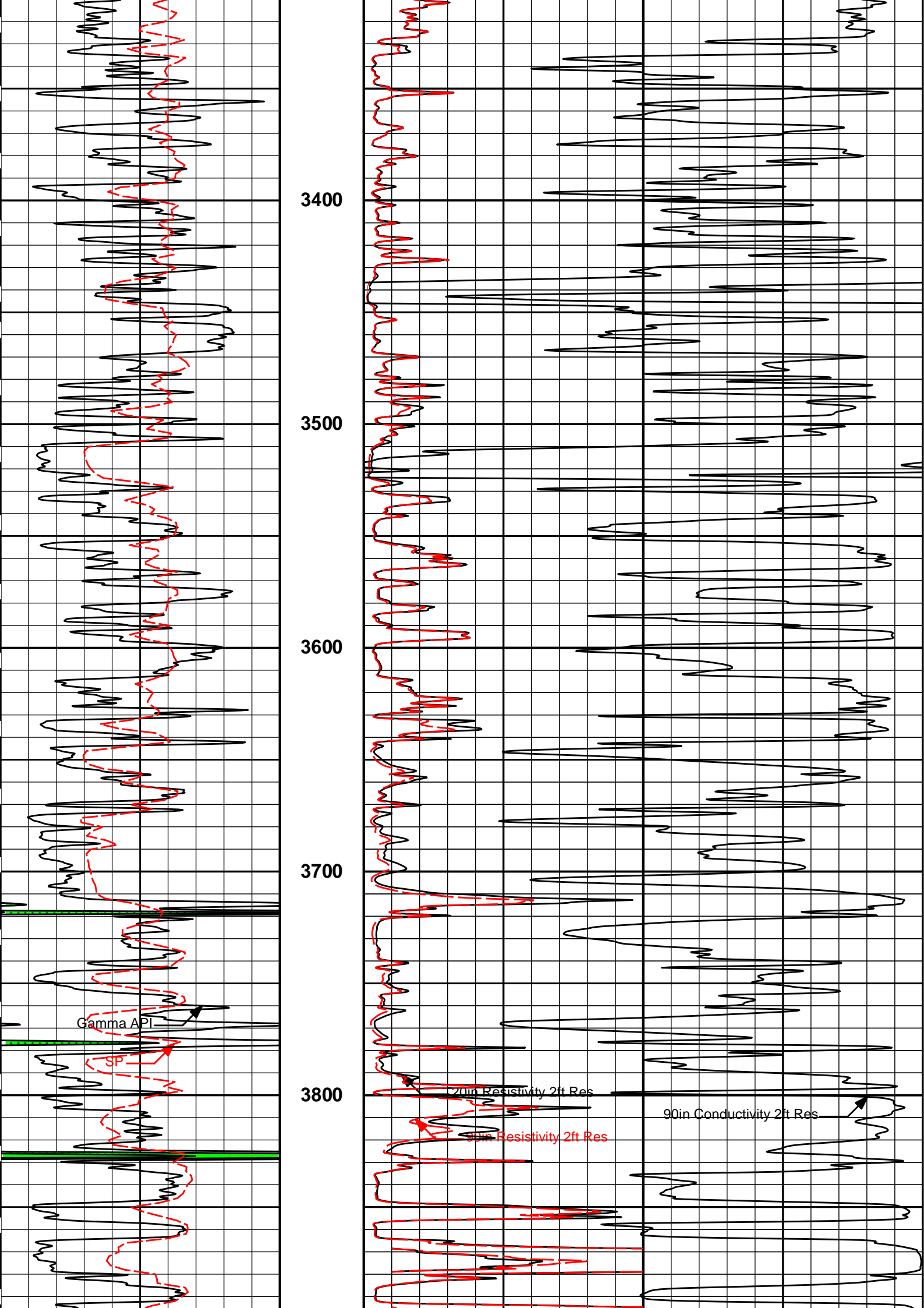
Gamma AFI

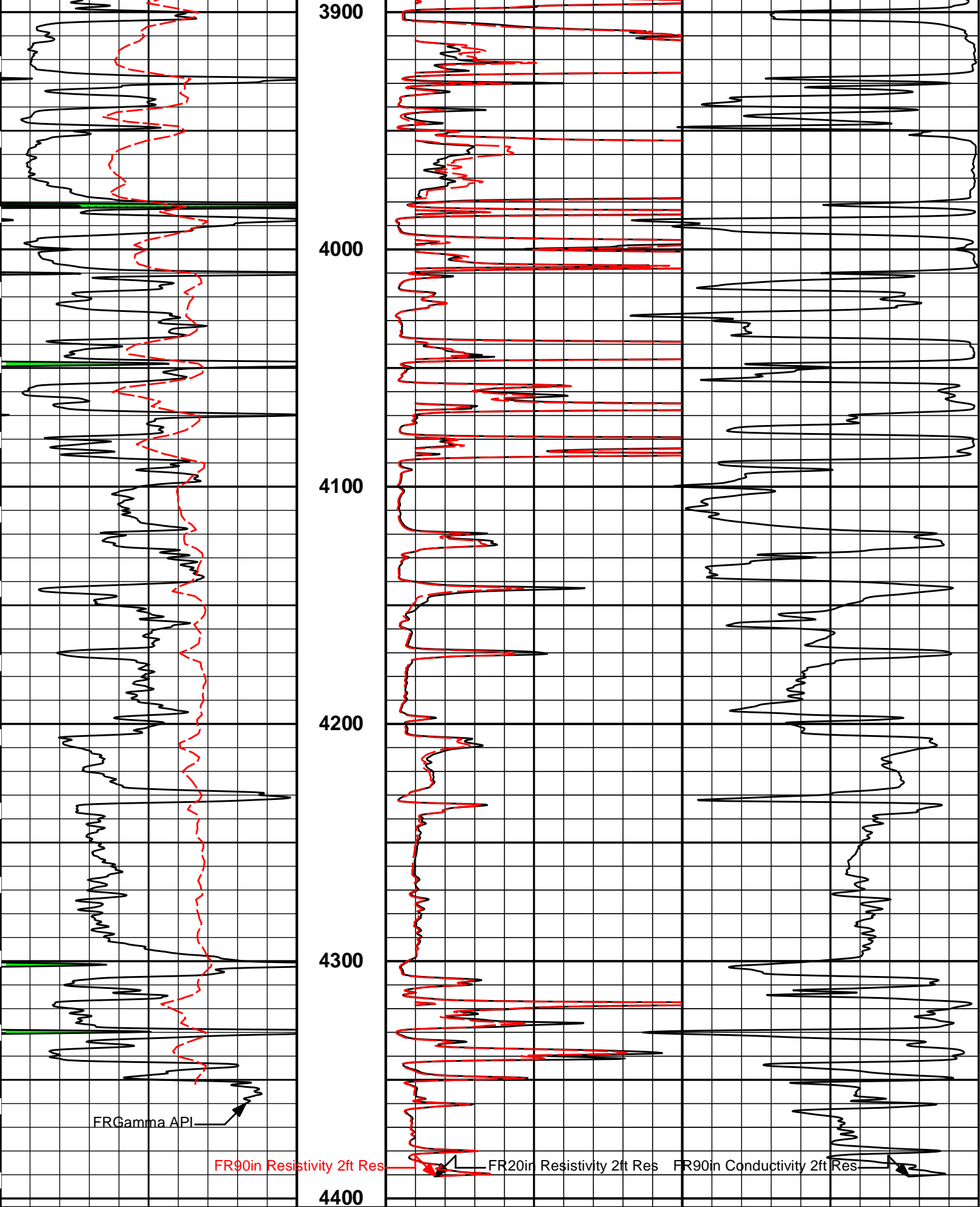
SP

90in Resistivity 2ft Res

20in Resistivity 2ft Res

90in Conductivity 2ft Res





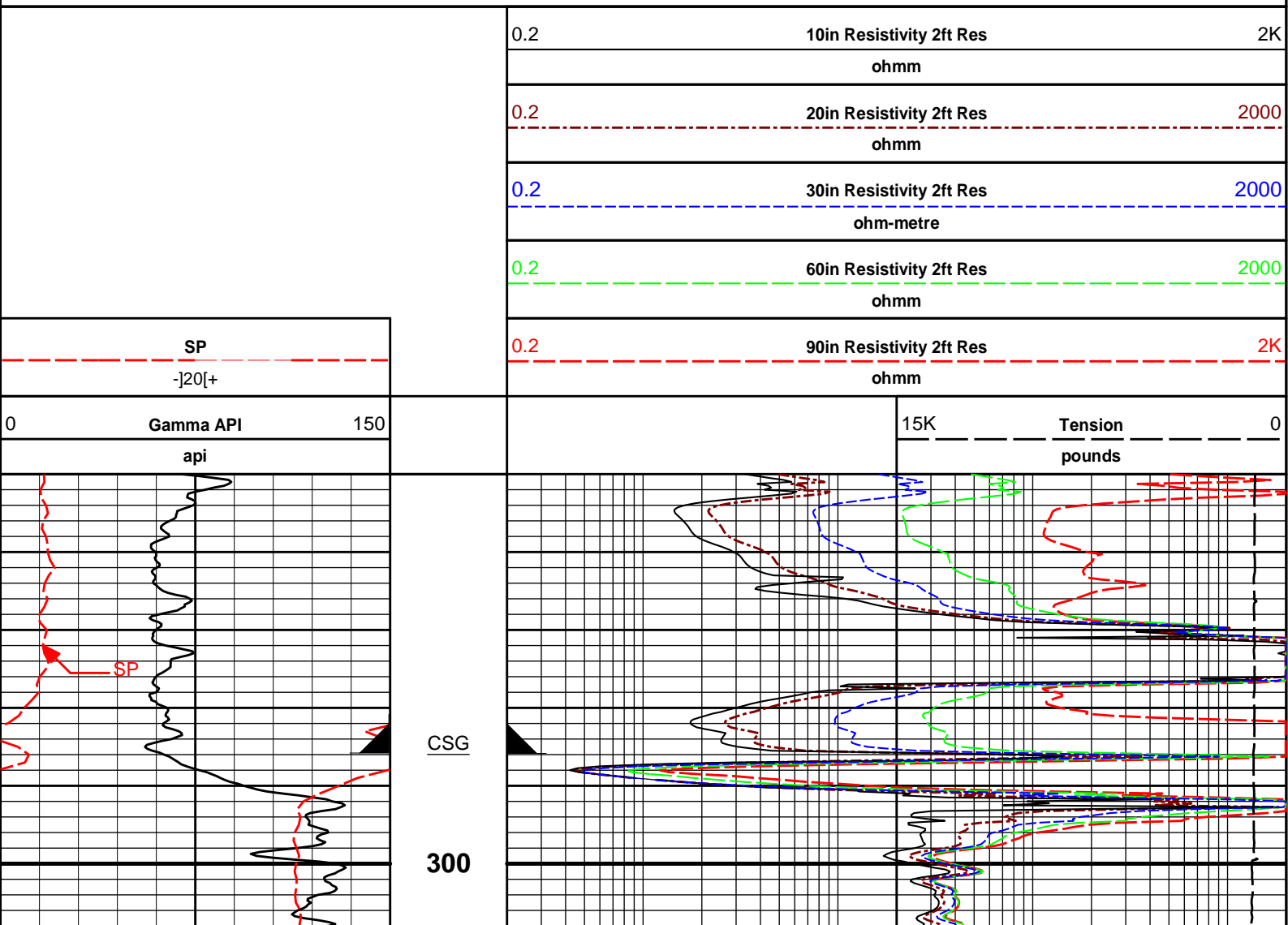
0	Gamma API	150	1 : 600 ft	0	20in Resistivity 2ft Res	50
	api			0	90in Resistivity 2ft Res	50
	SP			ohm-metre		
	- 20 +			ohm-metre		
				1000	90in Conductivity 2ft Res	0
					mmho per metre	

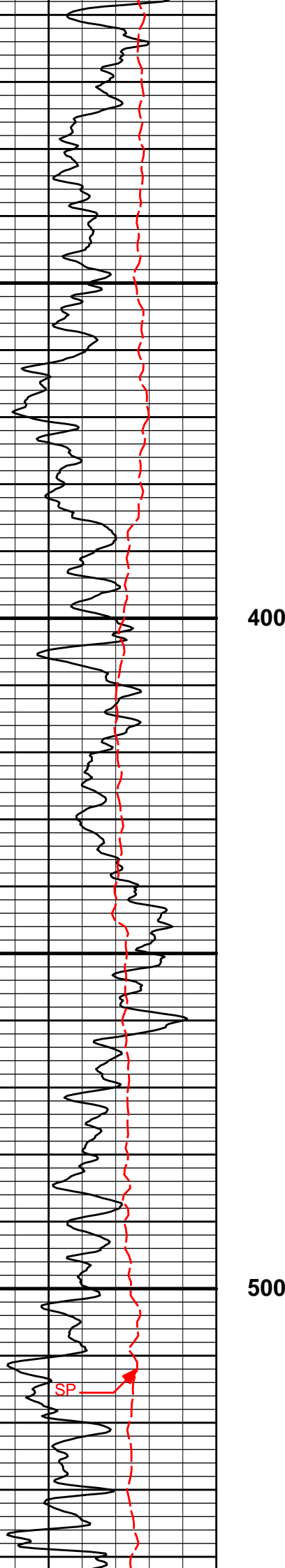
### 2 INCH MAIN LOG

### 2 INCH MAIN LOG

### 5 INCH MAIN LOG

### 5 INCH MAIN LOG





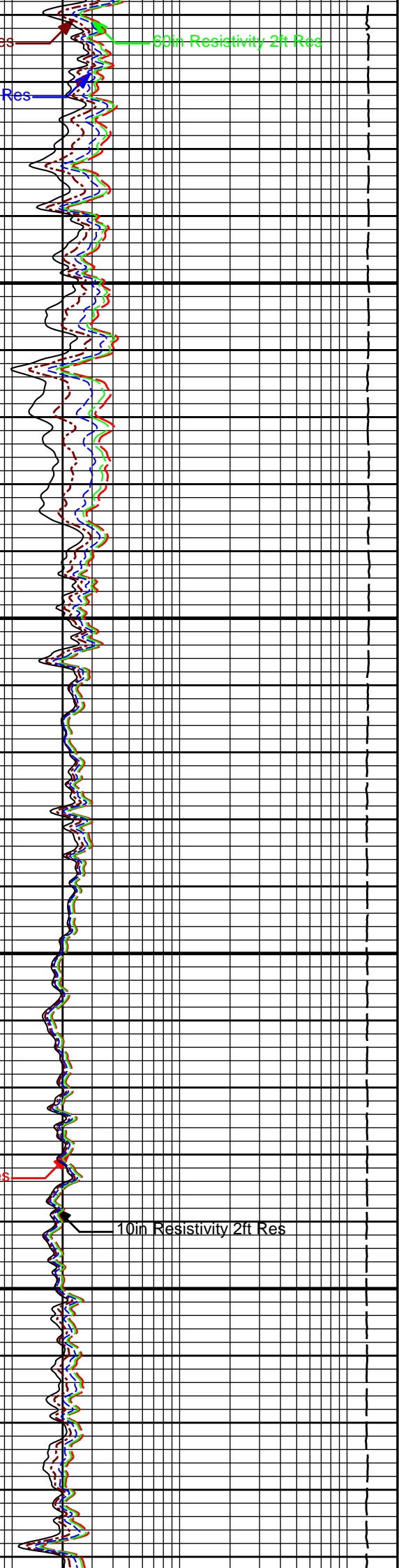
20in Resistivity 2ft Res

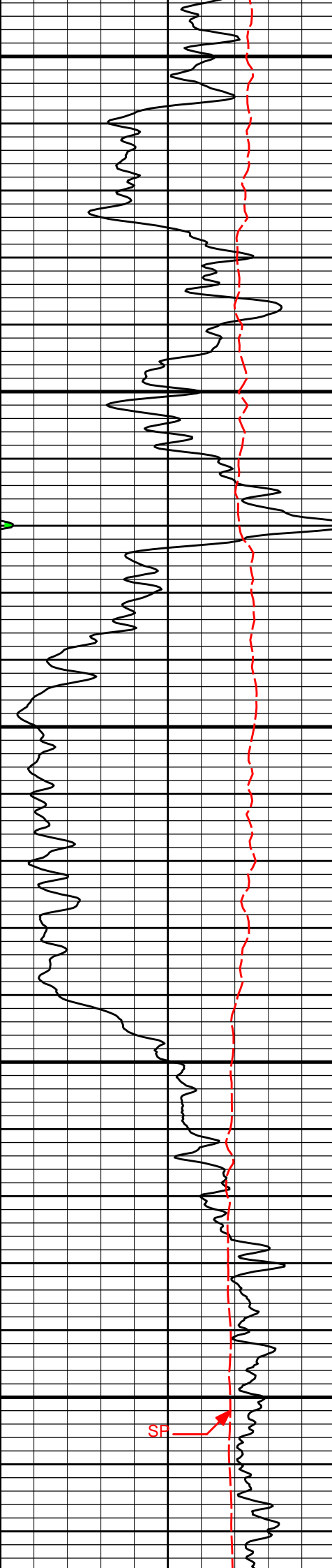
30in Resistivity 2ft Res

60in Resistivity 2ft Res

90in Resistivity 2ft Res

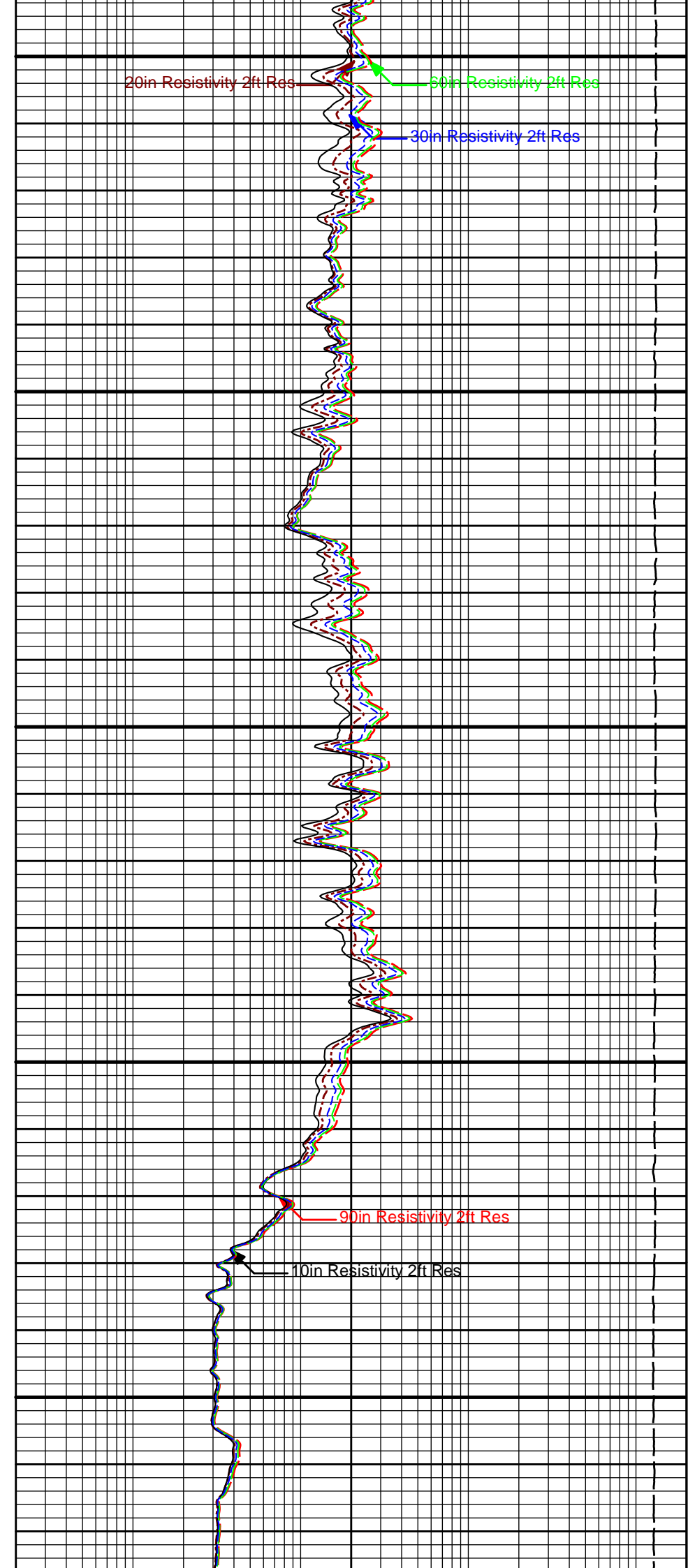
10in Resistivity 2ft Res

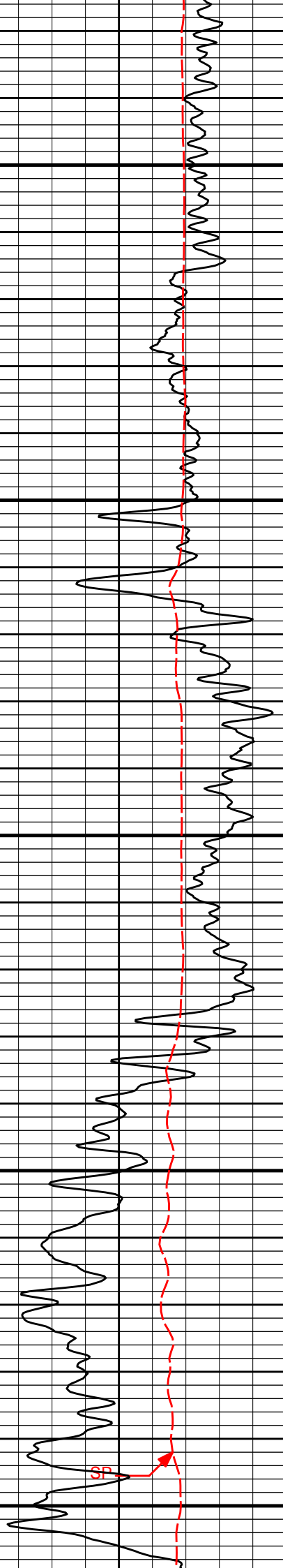




600

700





800

900

1000

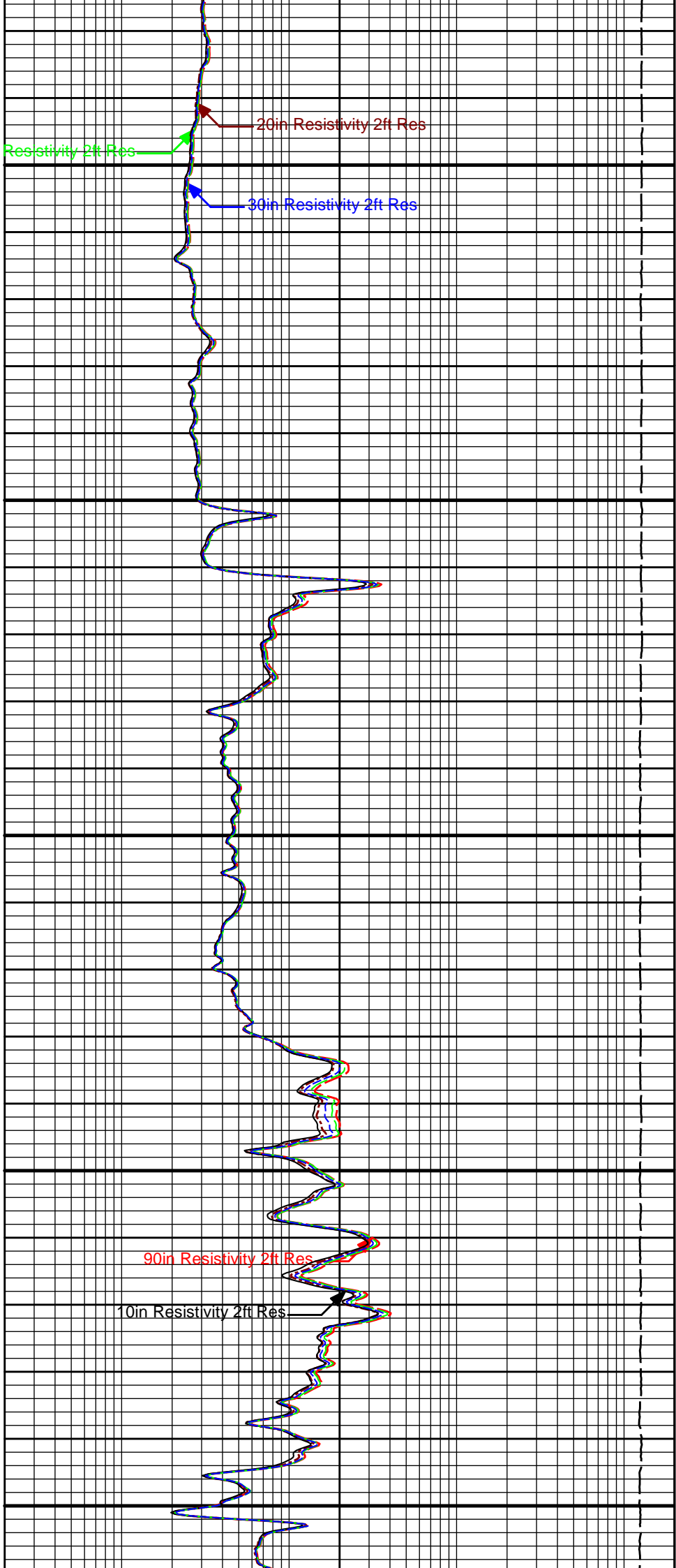
60in Resistivity 2ft Res

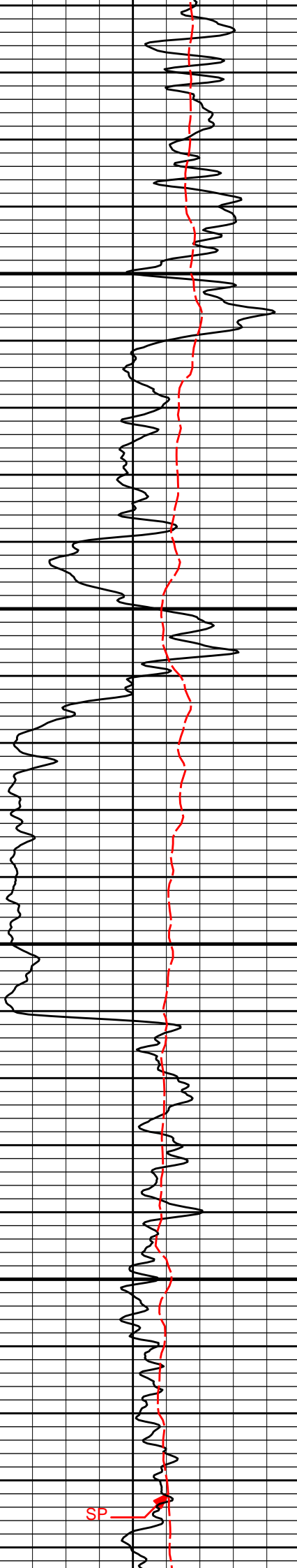
20in Resistivity 2ft Res

30in Resistivity 2ft Res

90in Resistivity 2ft Res

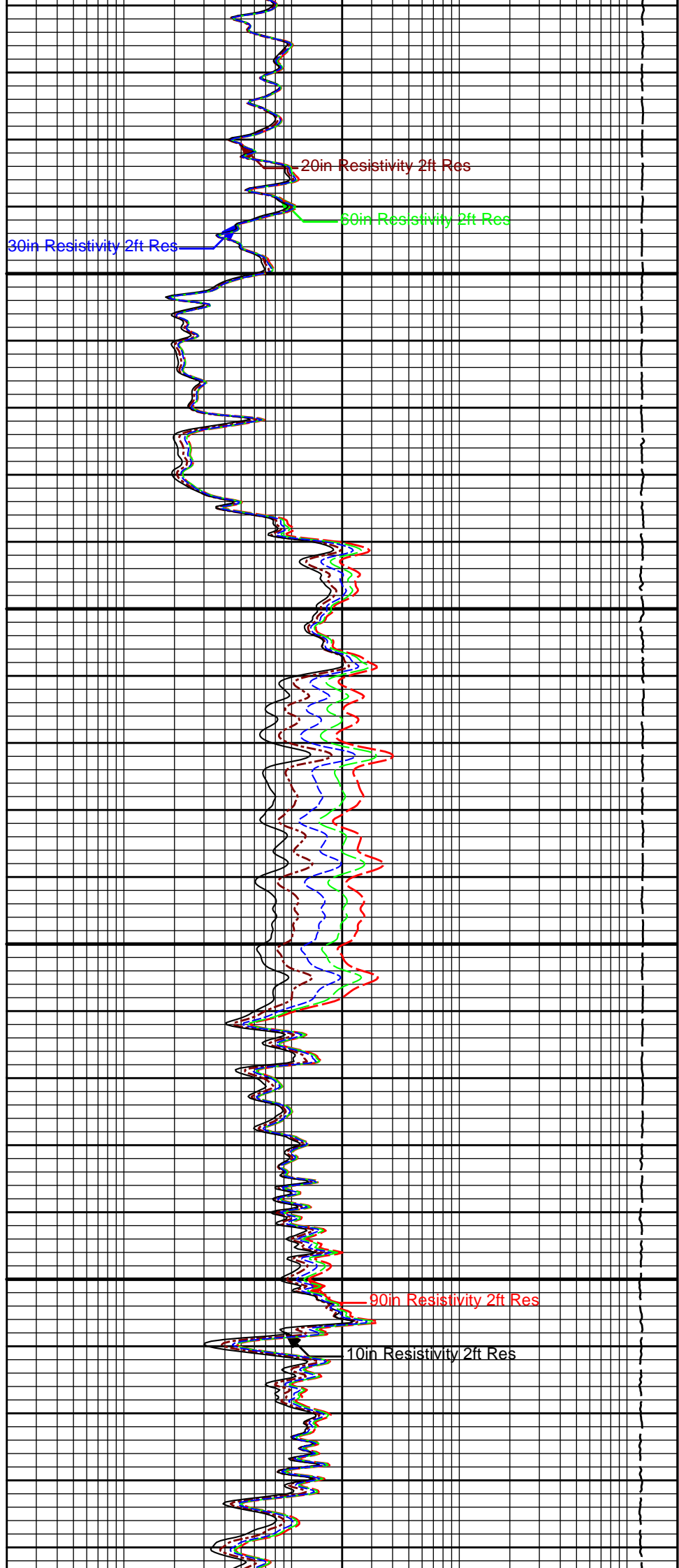
10in Resistivity 2ft Res





1100

1200



20in Resistivity 2ft Res

50in Resistivity 2ft Res

30in Resistivity 2ft Res

90in Resistivity 2ft Res

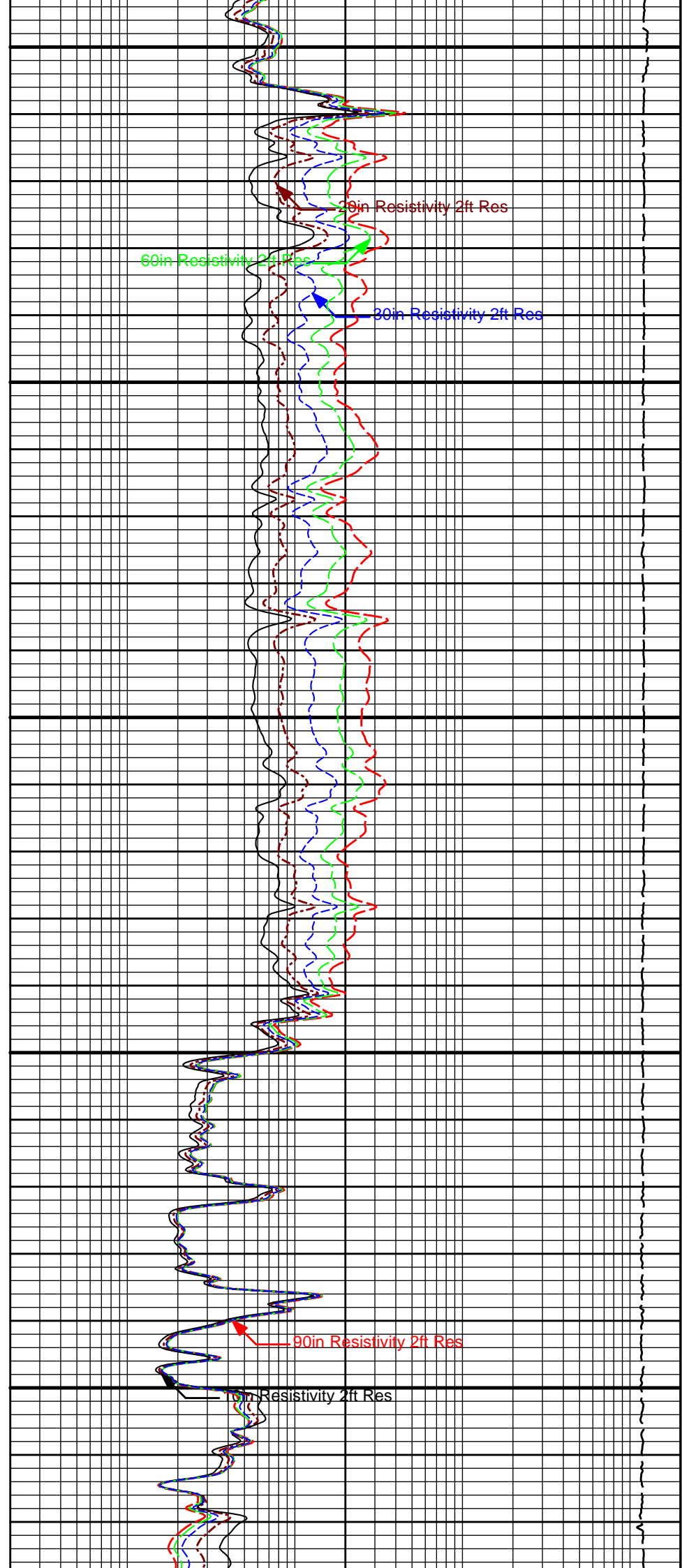
10in Resistivity 2ft Res

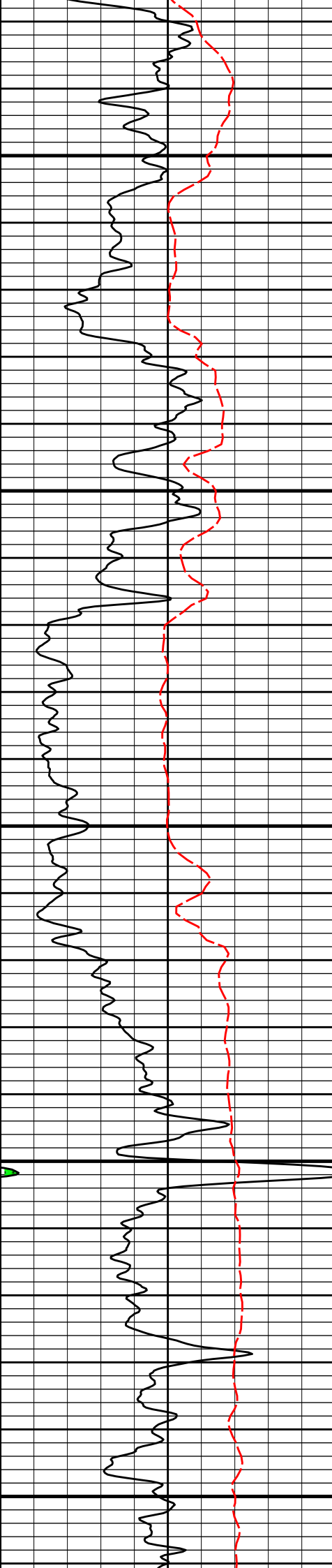
SP



1300

1400

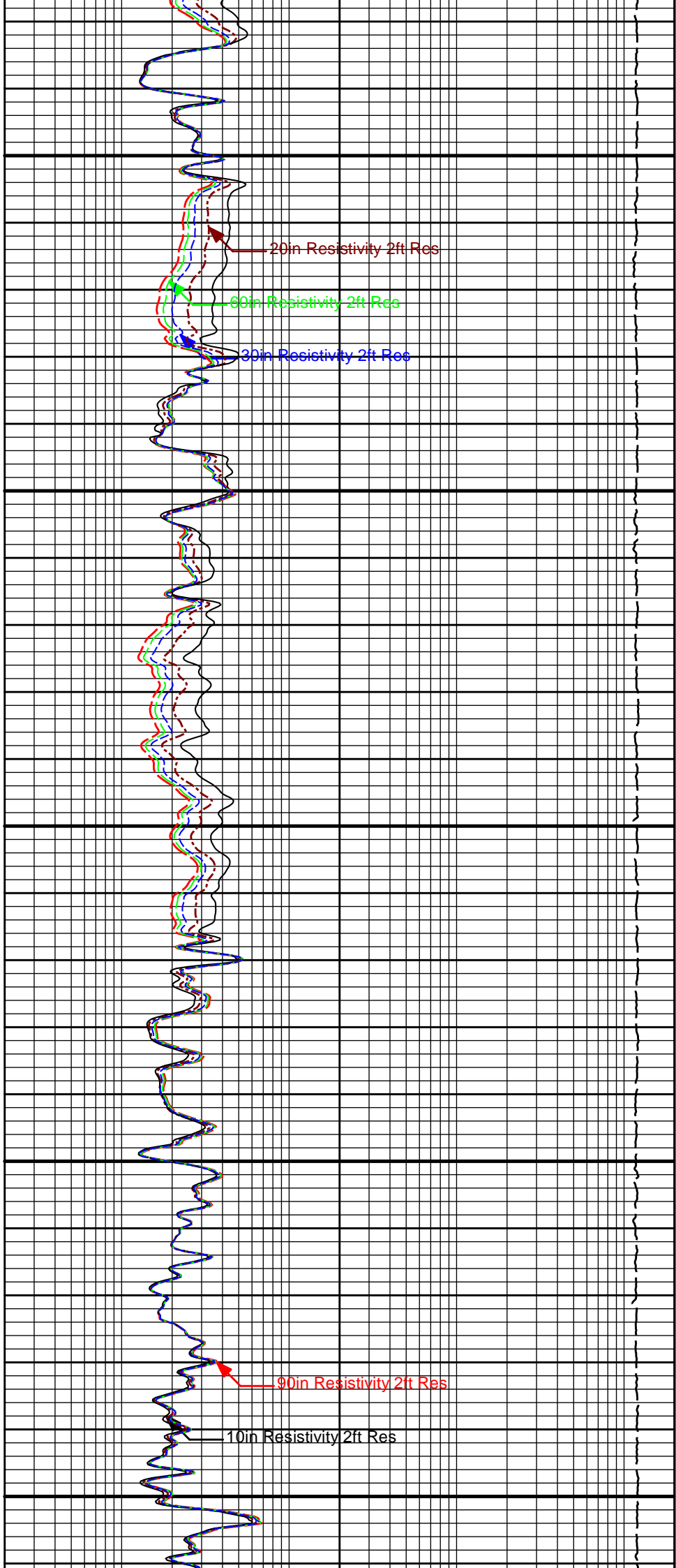


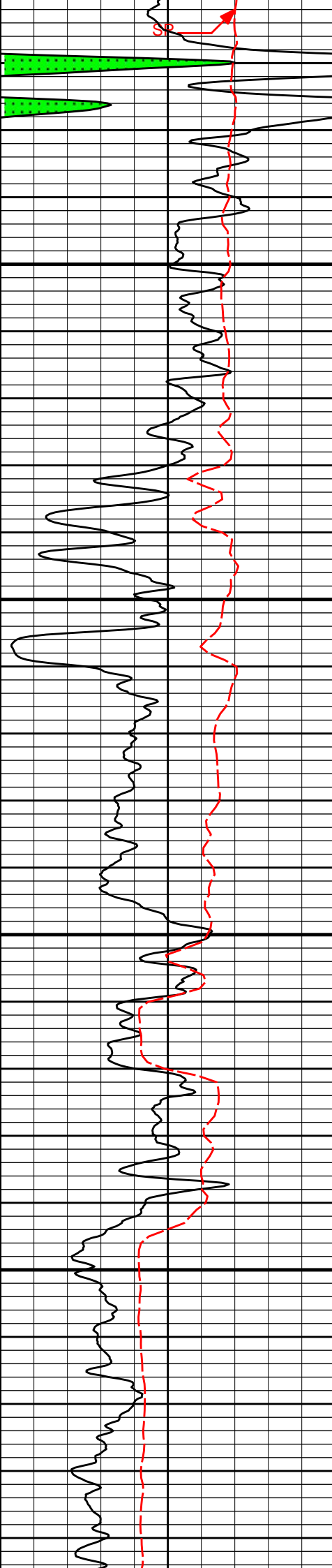


1500

1600

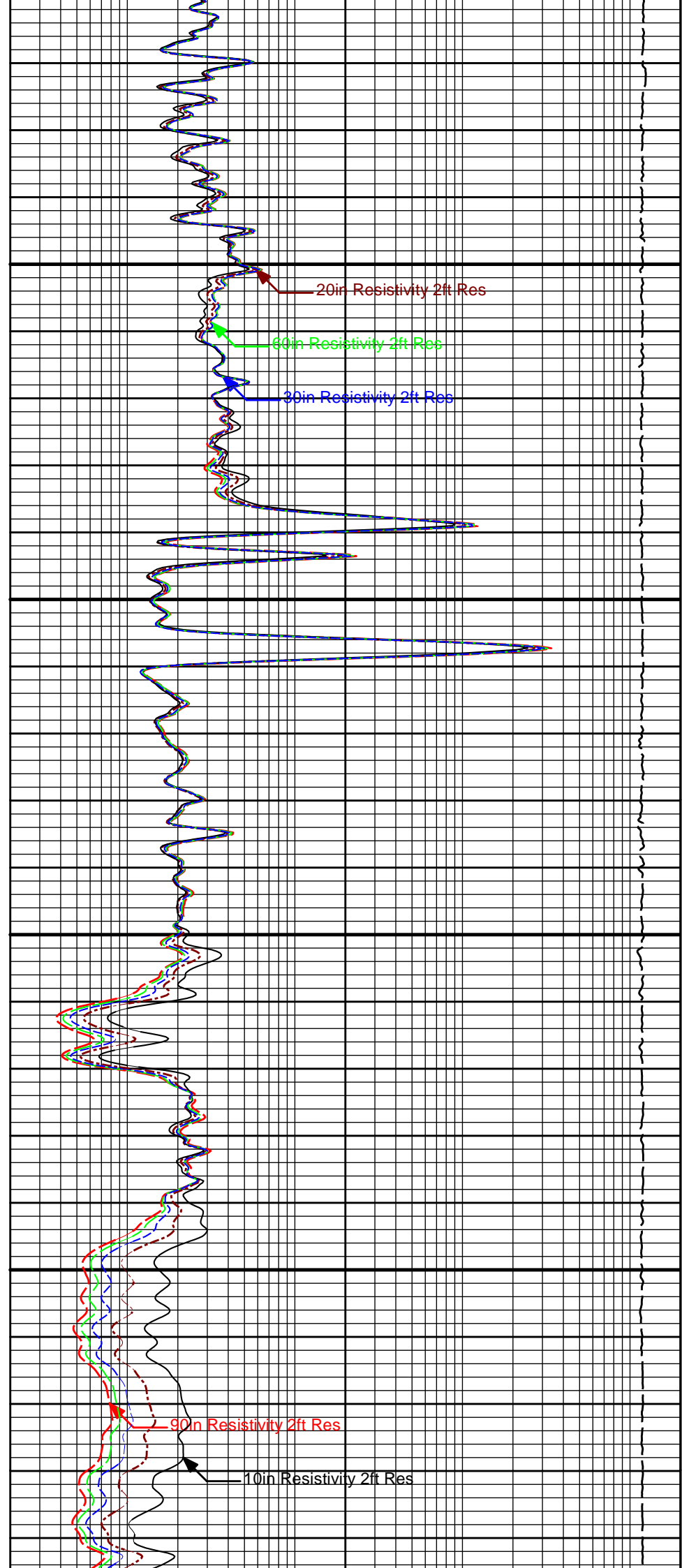
1700

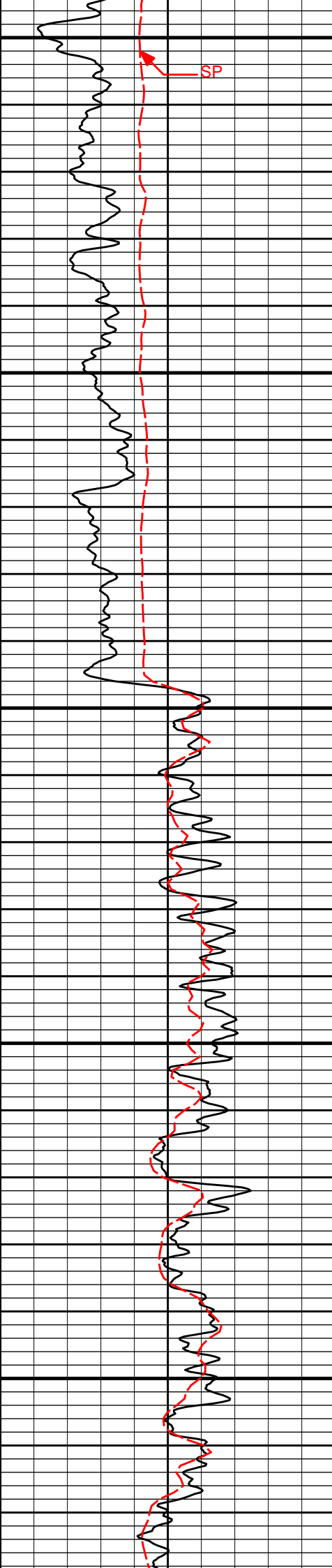




1800

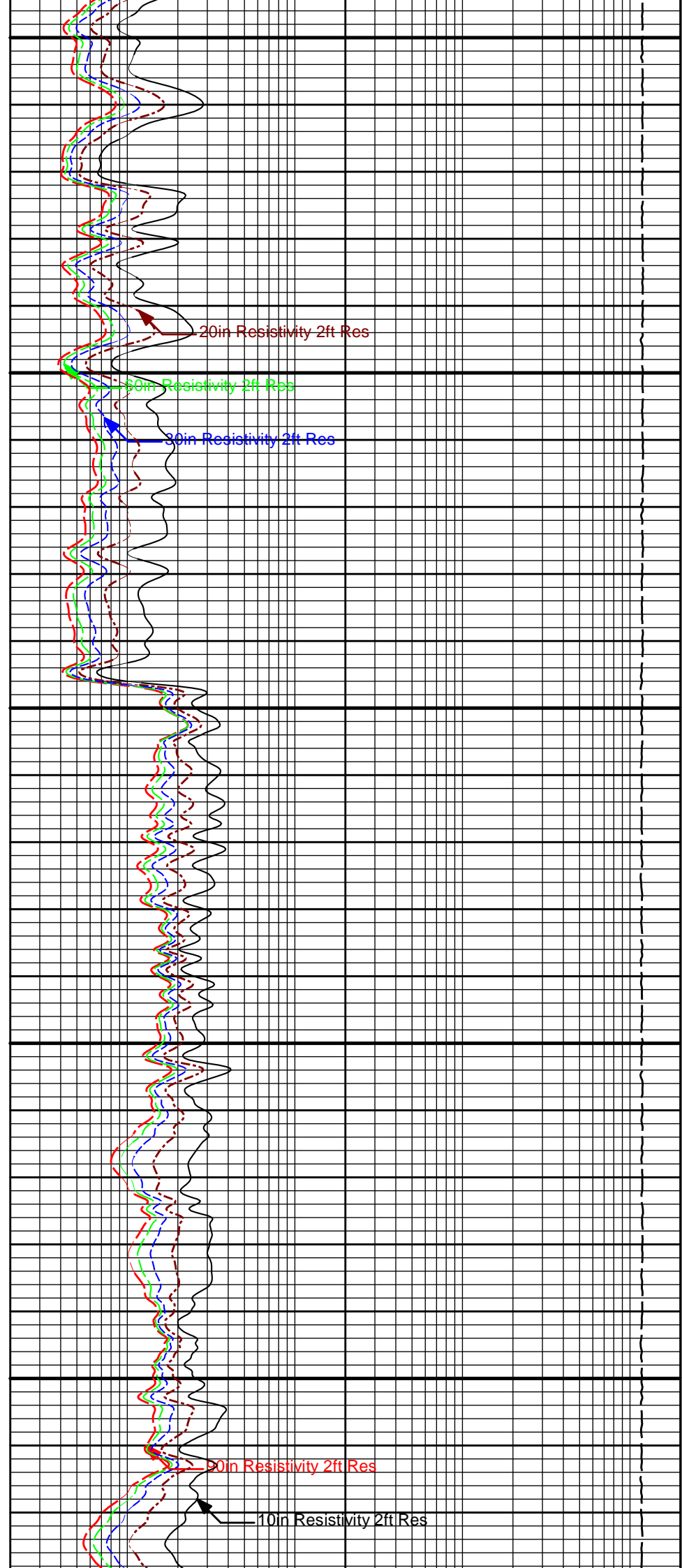
1900





2000

2100

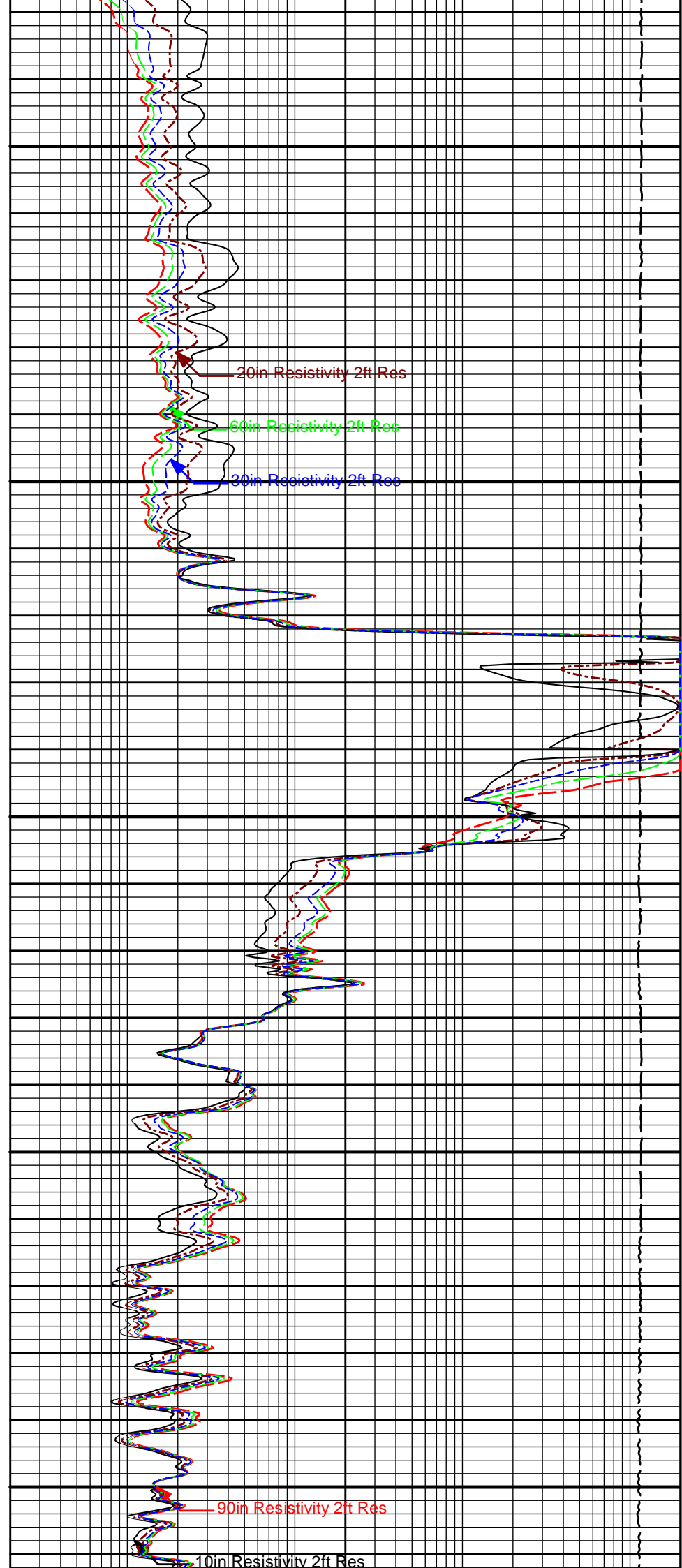




2200

2300

2400



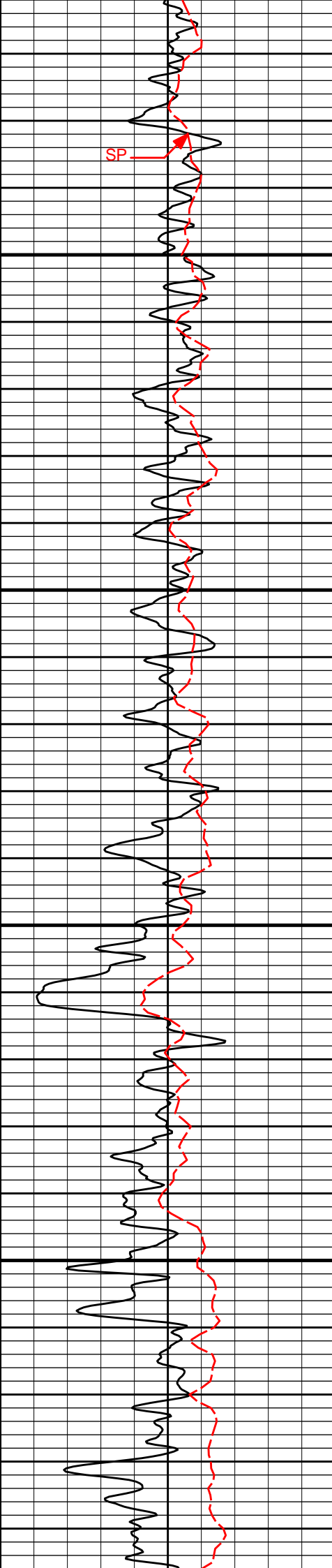
20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

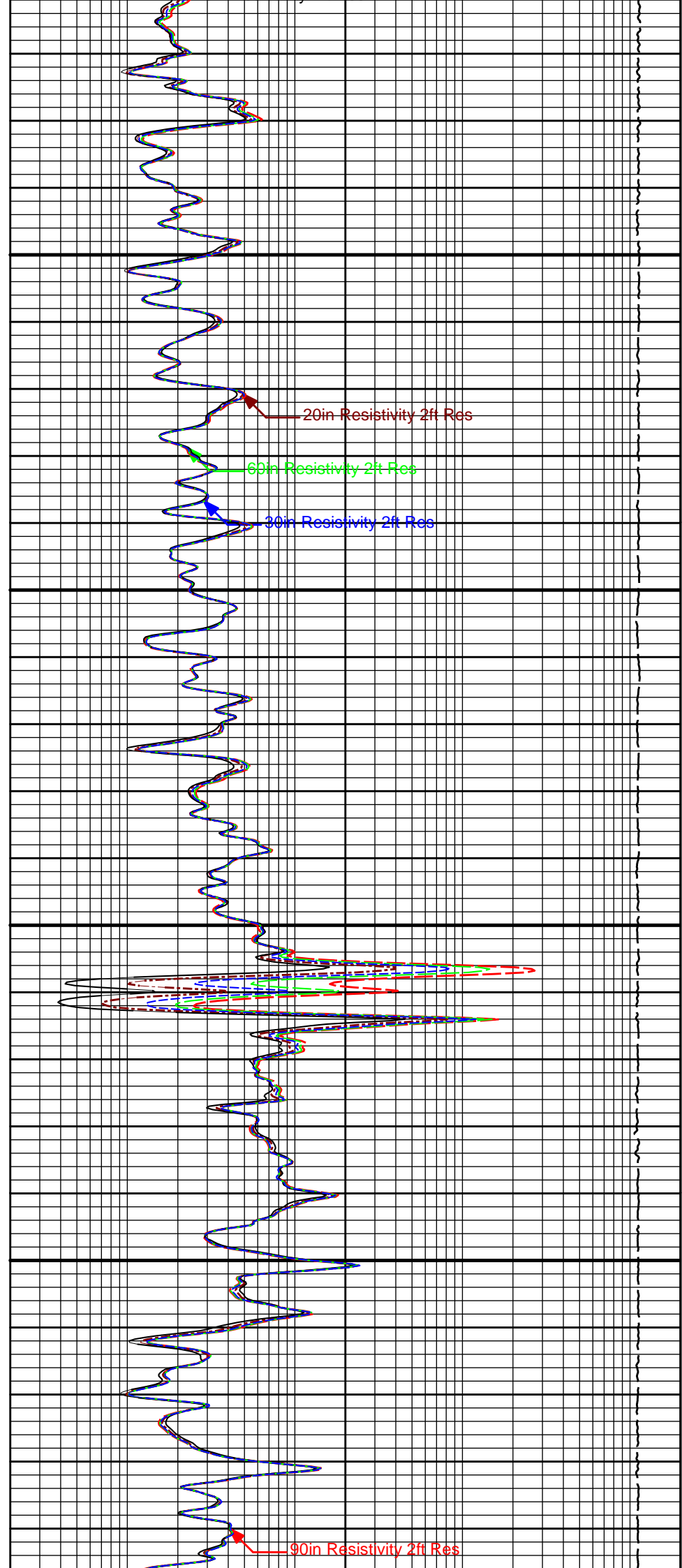
90in Resistivity 2ft Res

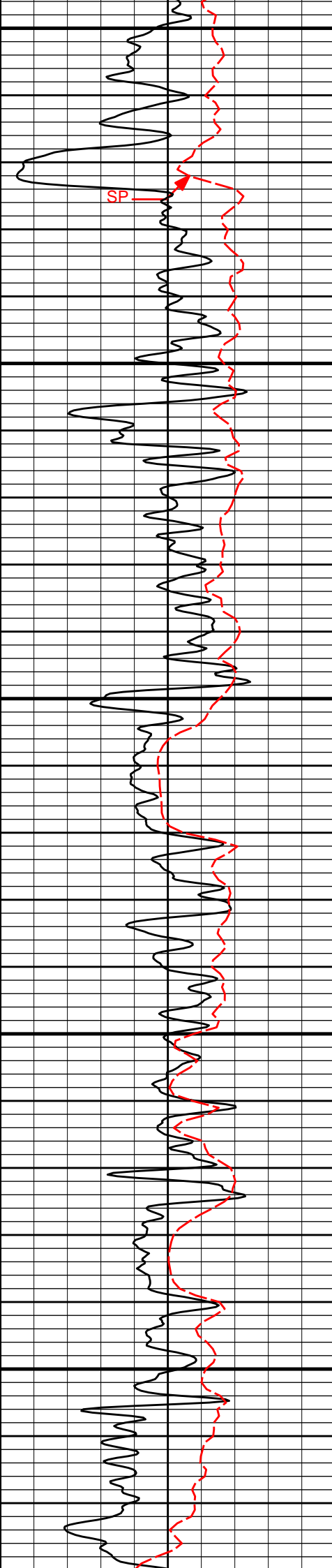
10in Resistivity 2ft Res



2500

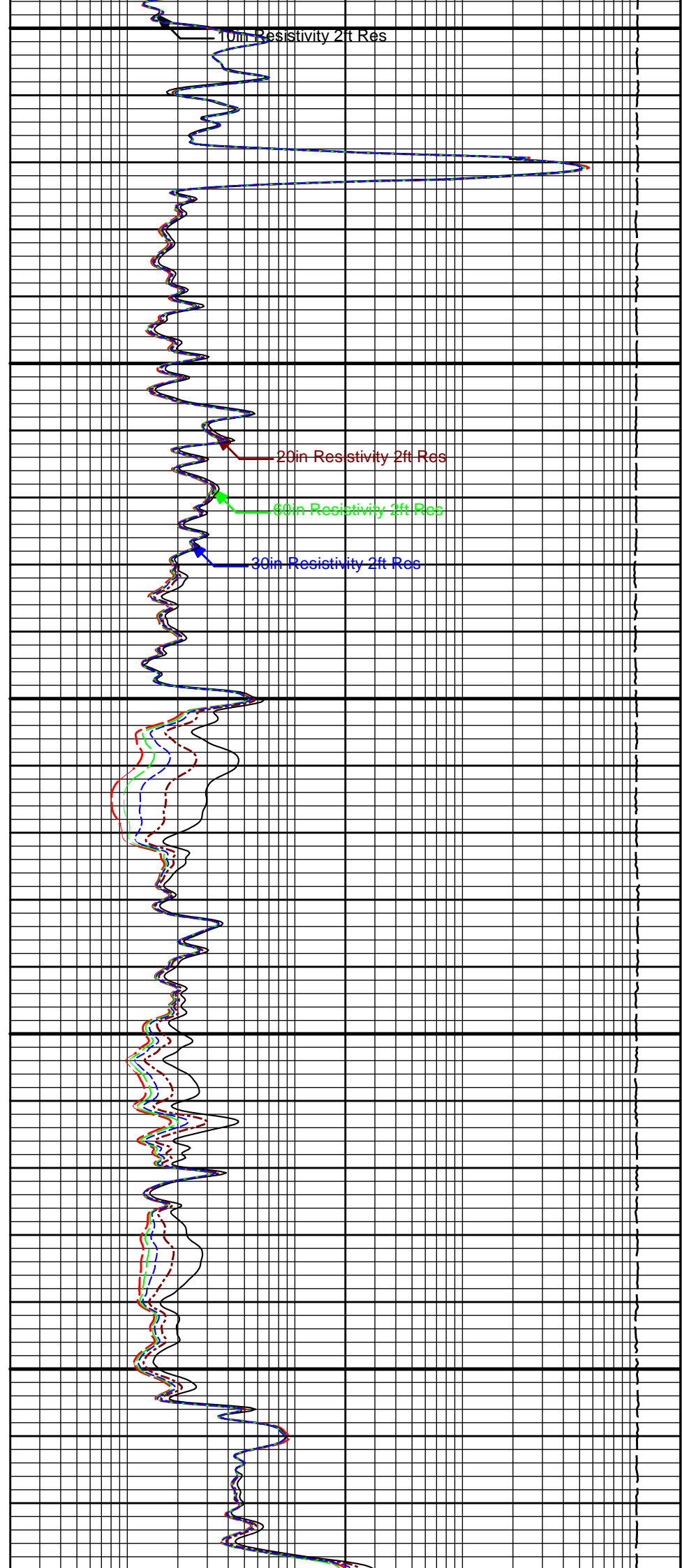
2600





2700

2800



10in Resistivity 2ft Res

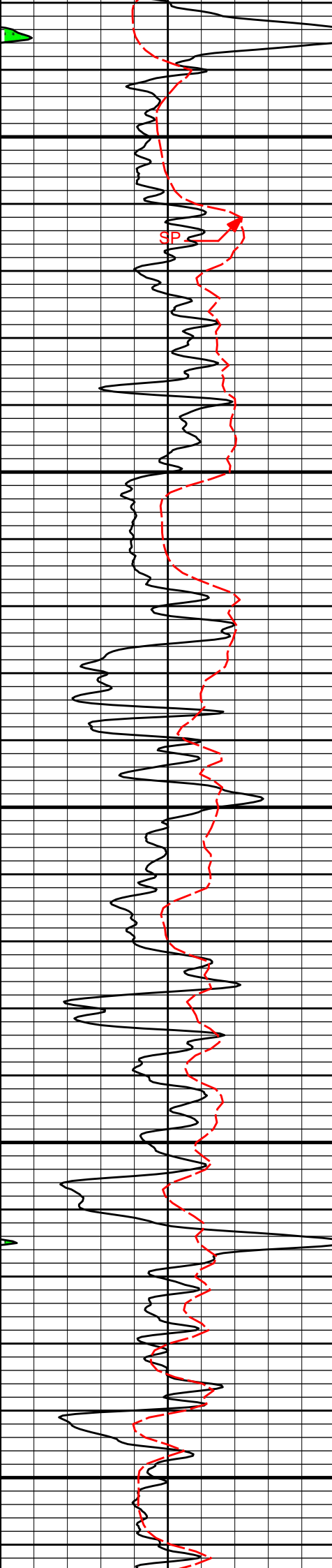
20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

2700

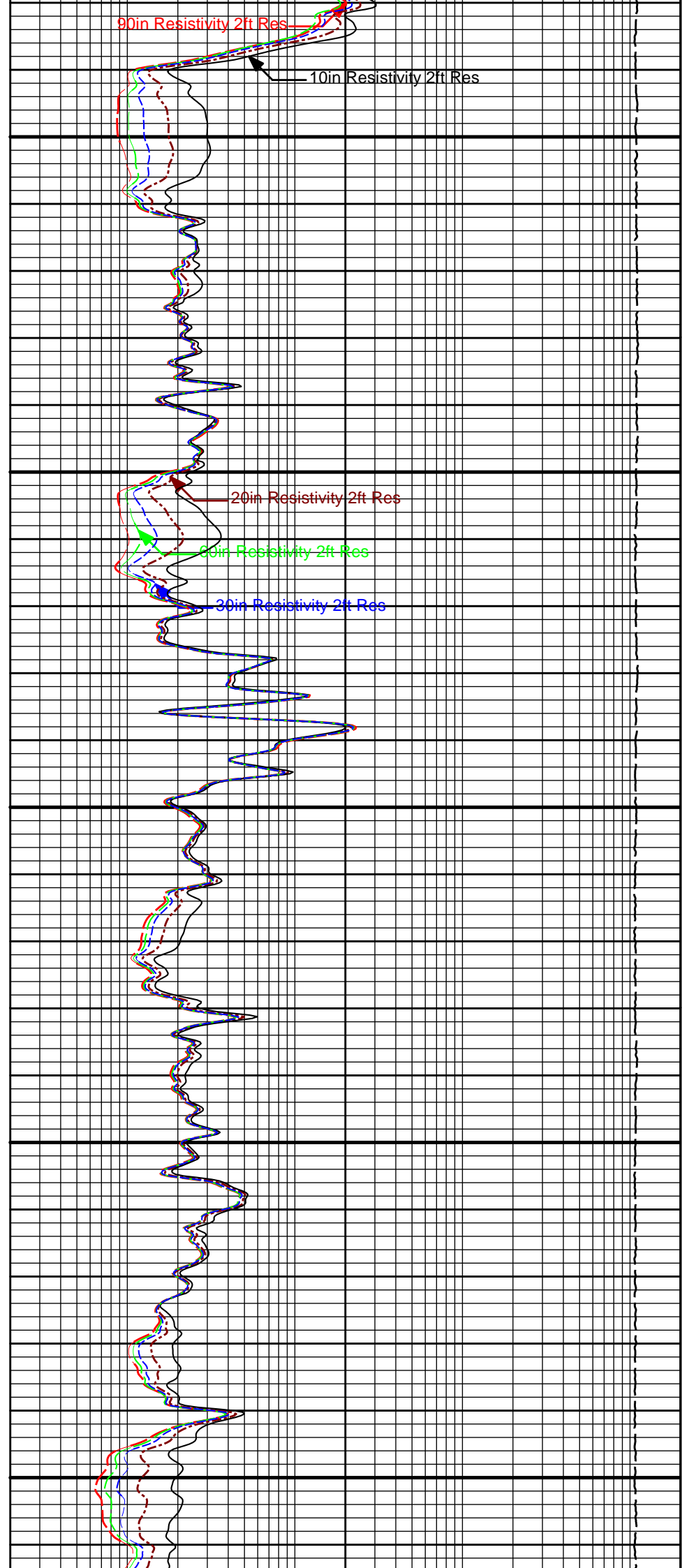
2800



2900

3000

3100



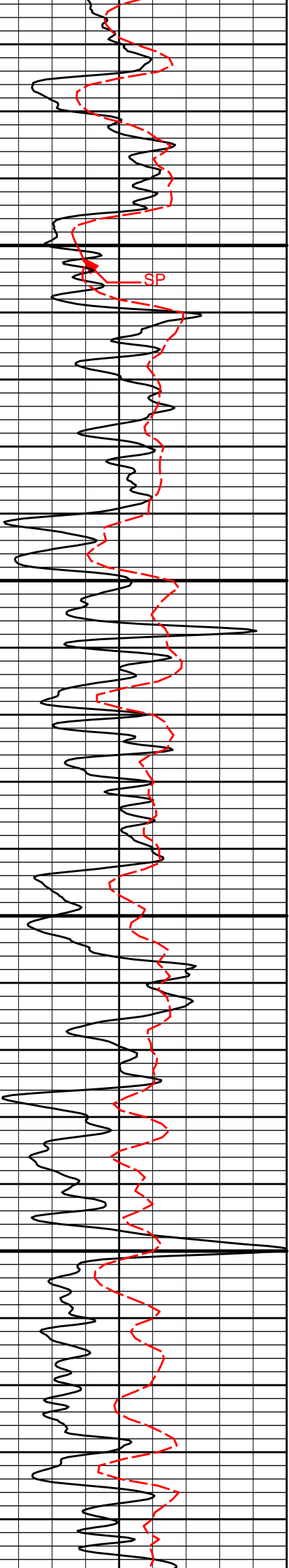
90in Resistivity 2ft Res

10in Resistivity 2ft Res

20in Resistivity 2ft Res

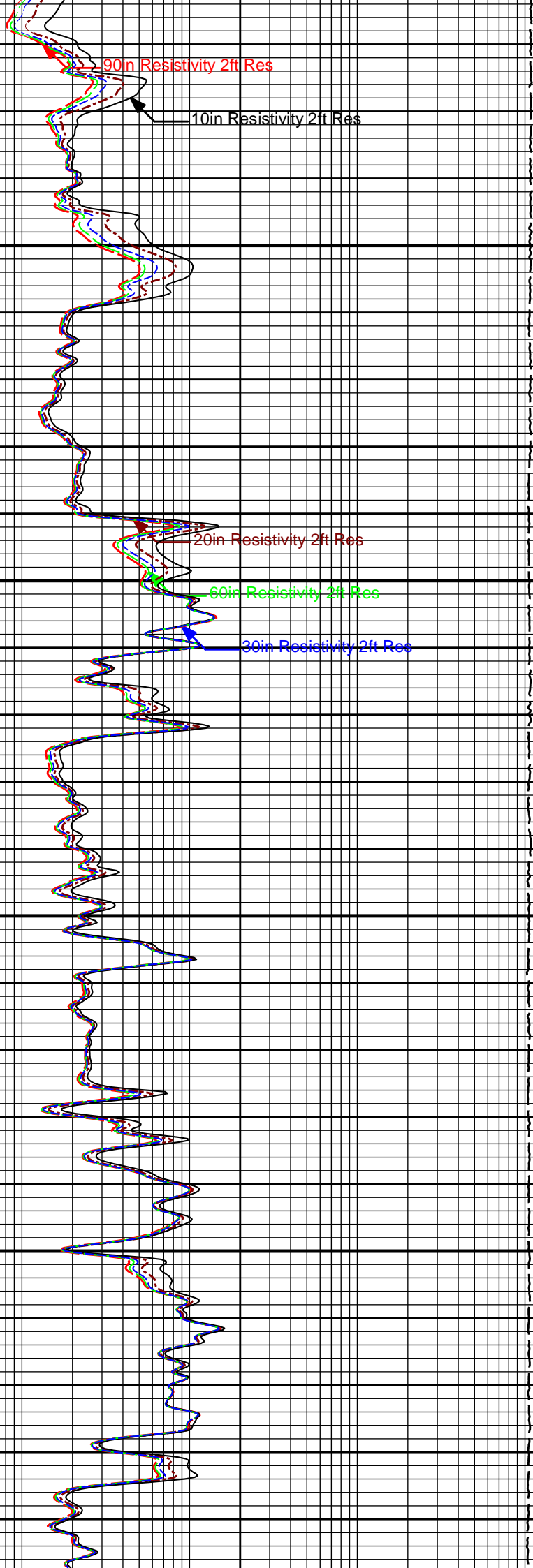
60in Resistivity 2ft Res

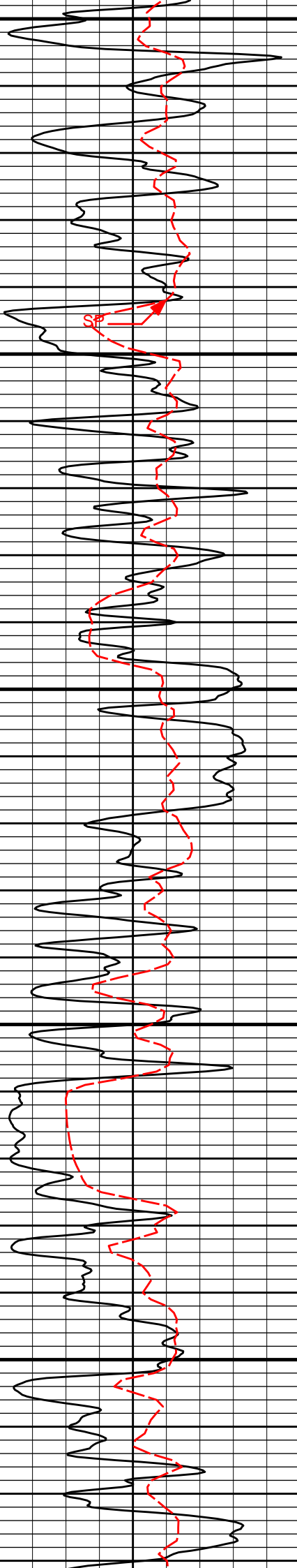
30in Resistivity 2ft Res



3200

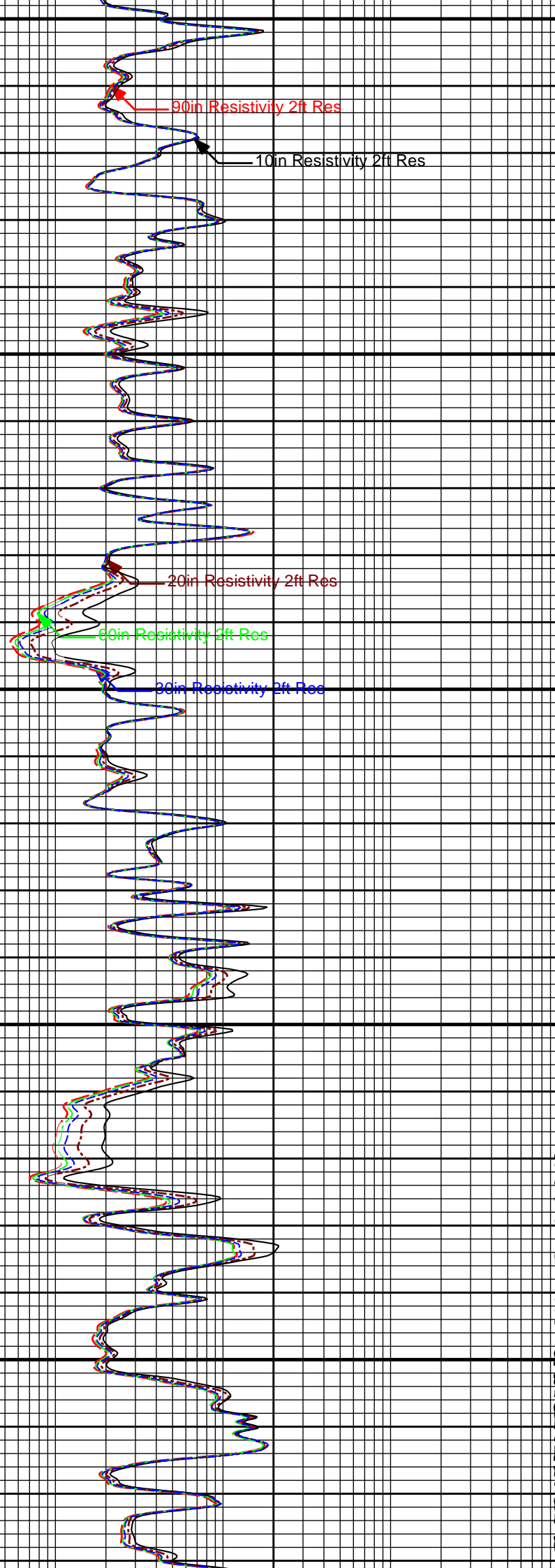
3300

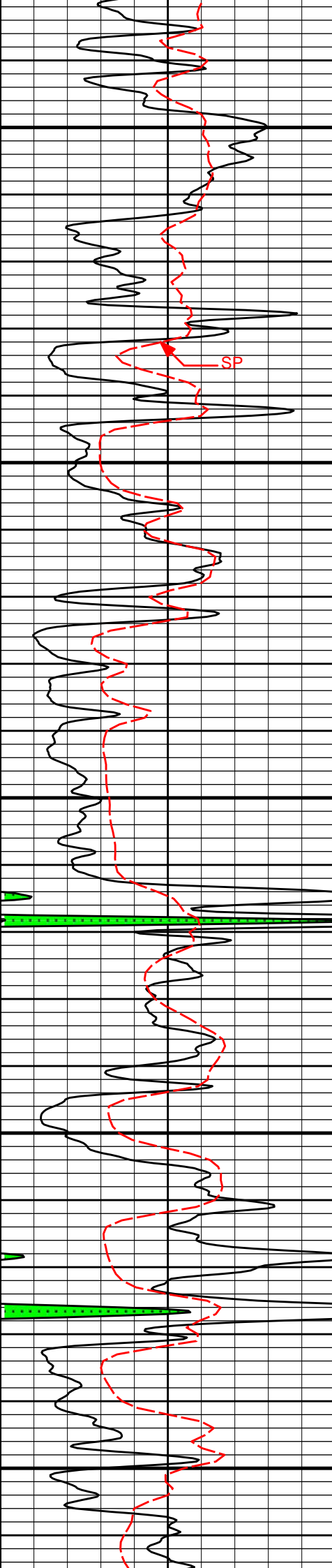




3400

3500

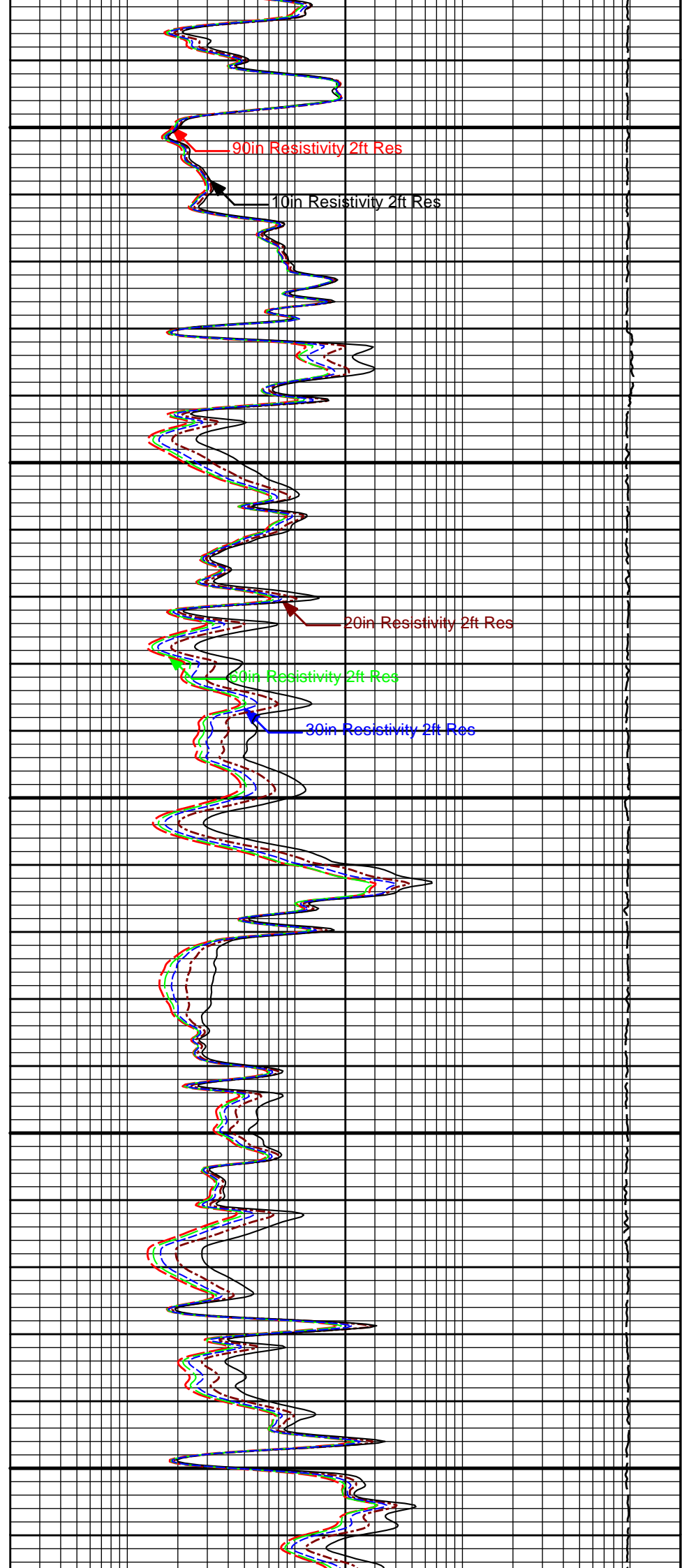


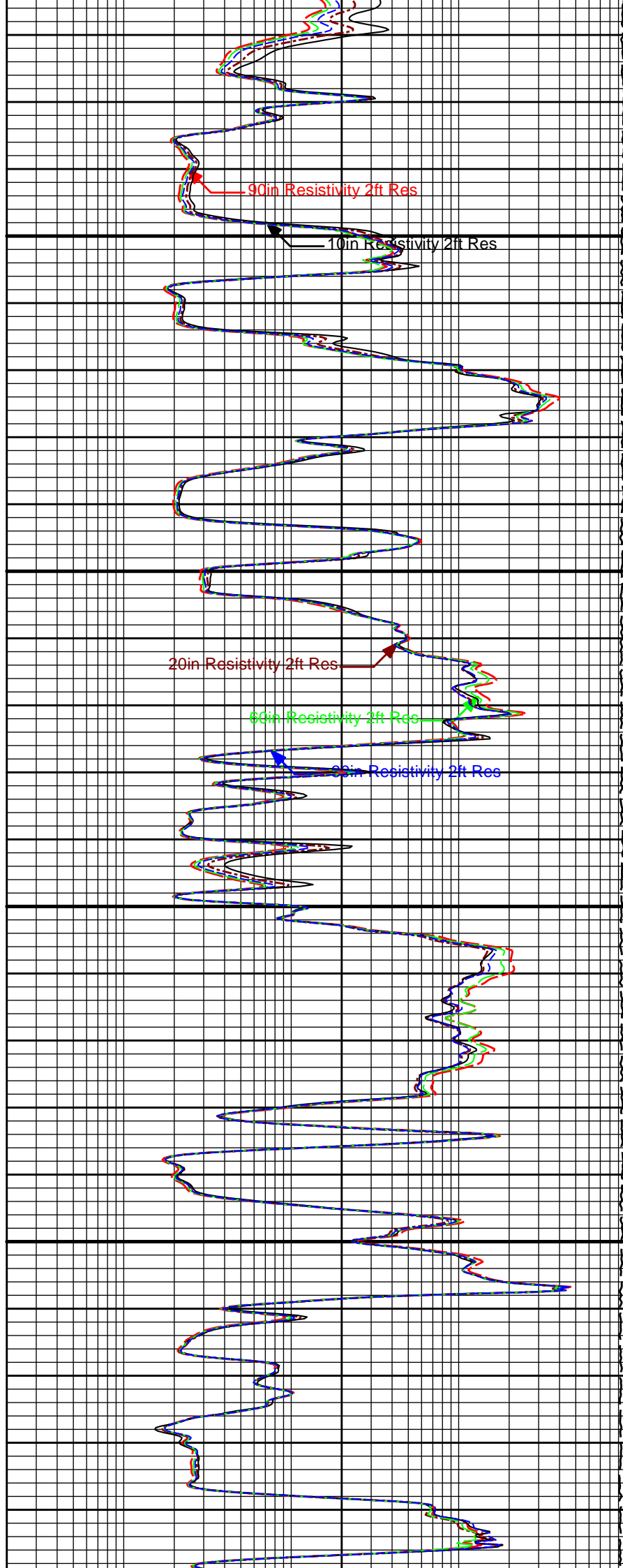
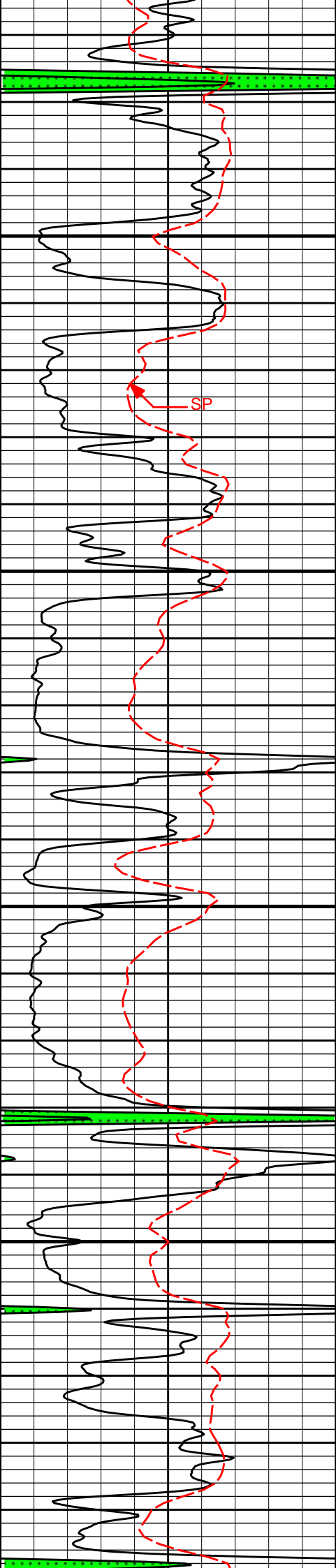


3600

3700

3800

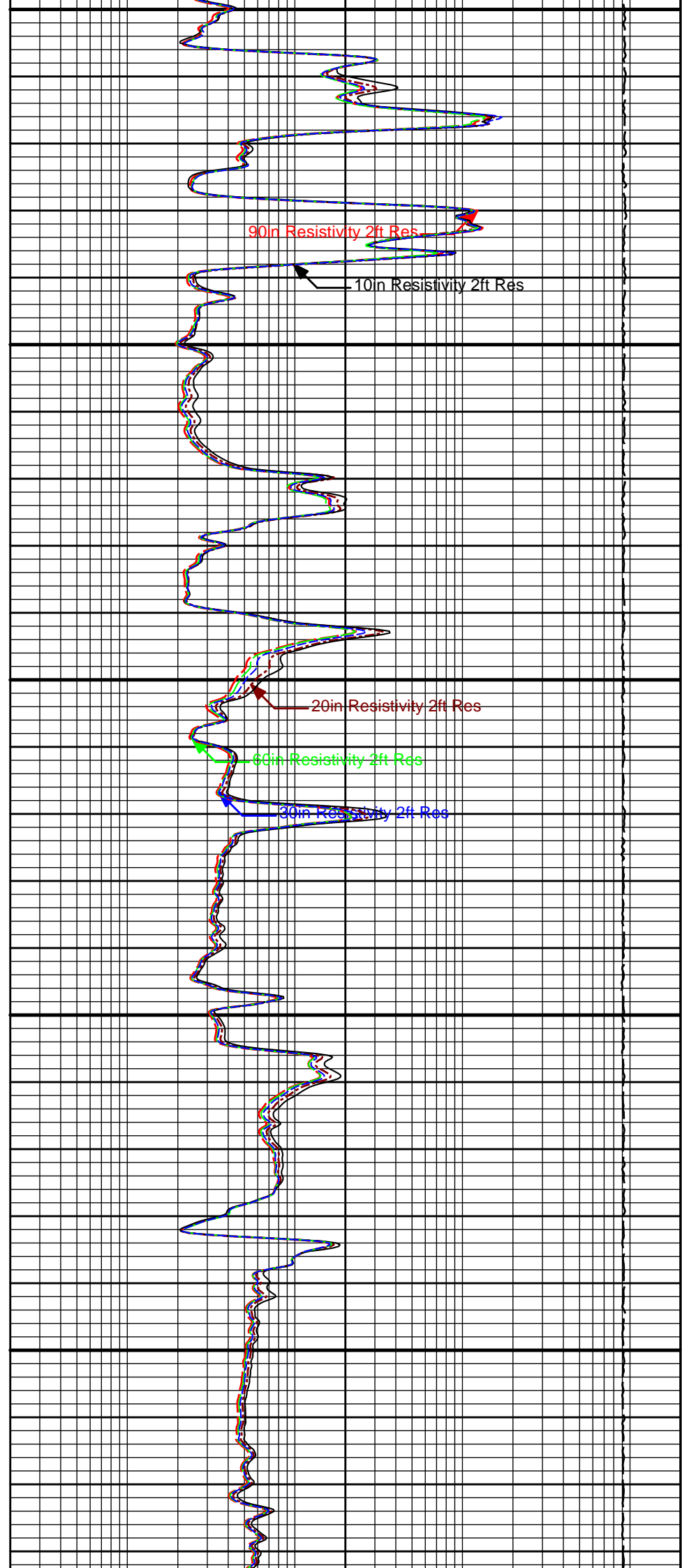


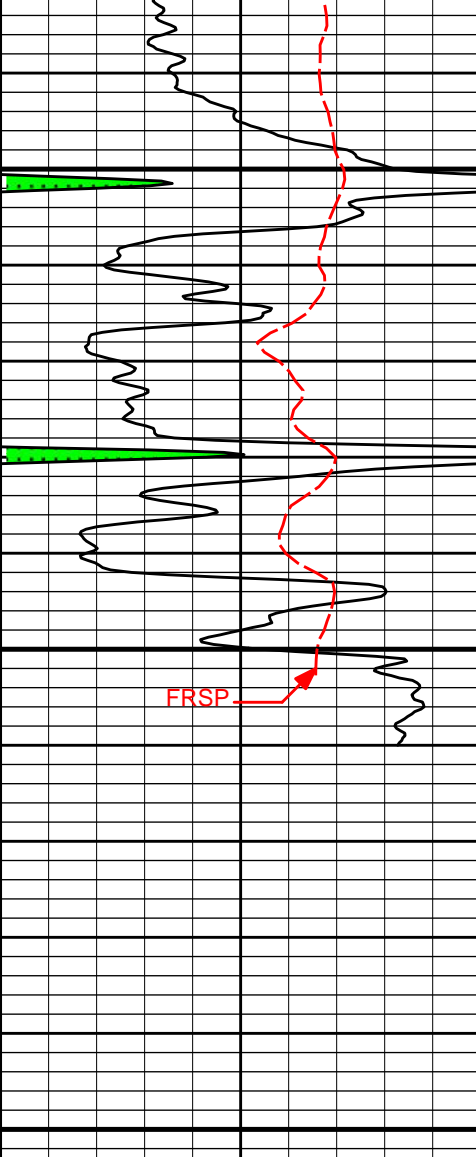




4100

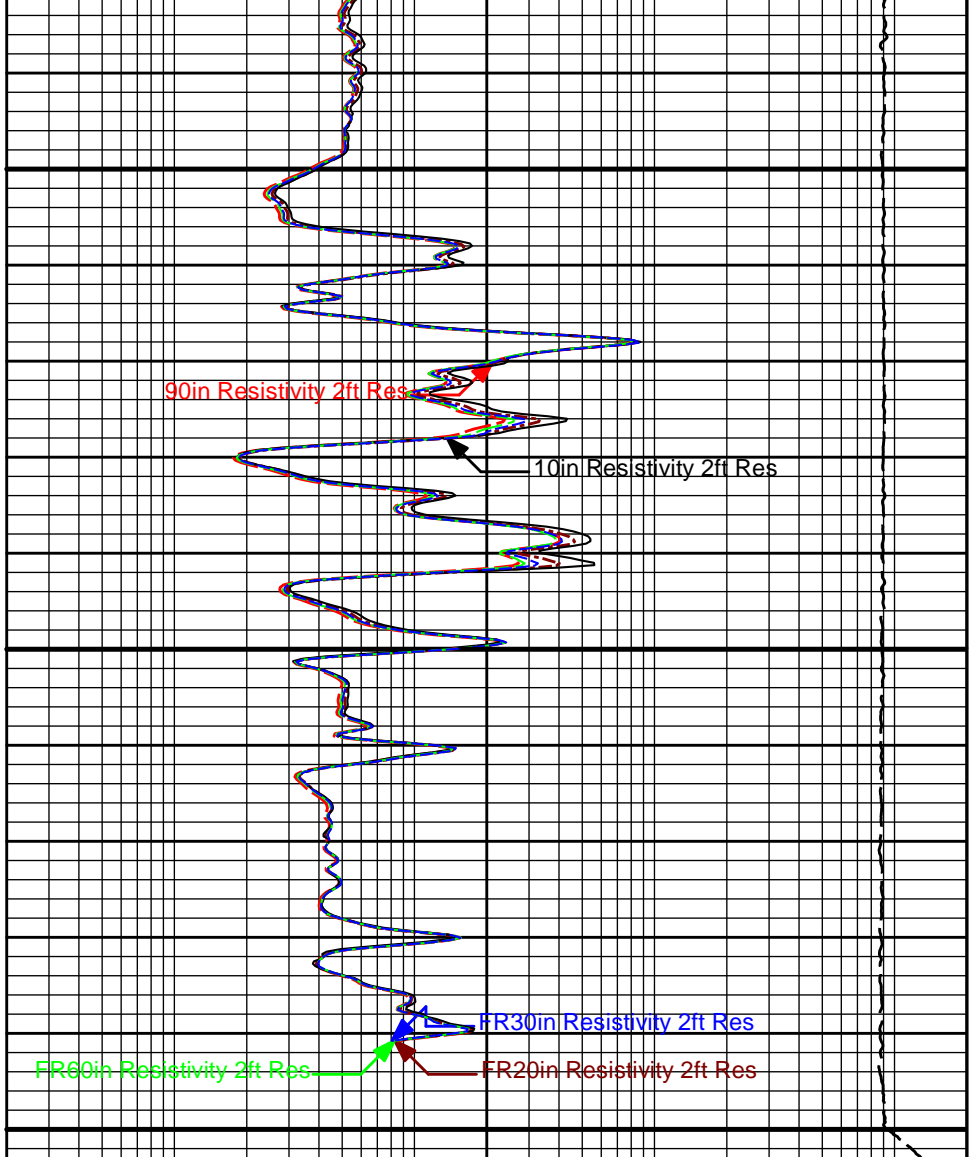
4200





4300

TD  
4400



0 Gamma API 150

api

SP  
-]20[+

15K Tension 0

pounds

0.2 90in Resistivity 2ft Res 2K  
ohmm

0.2 60in Resistivity 2ft Res 2000  
ohmm

0.2 30in Resistivity 2ft Res 2000  
ohm-metre

0.2 20in Resistivity 2ft Res 2000  
ohmm

0.2 10in Resistivity 2ft Res 2K  
ohmm

**HALLIBURTON**

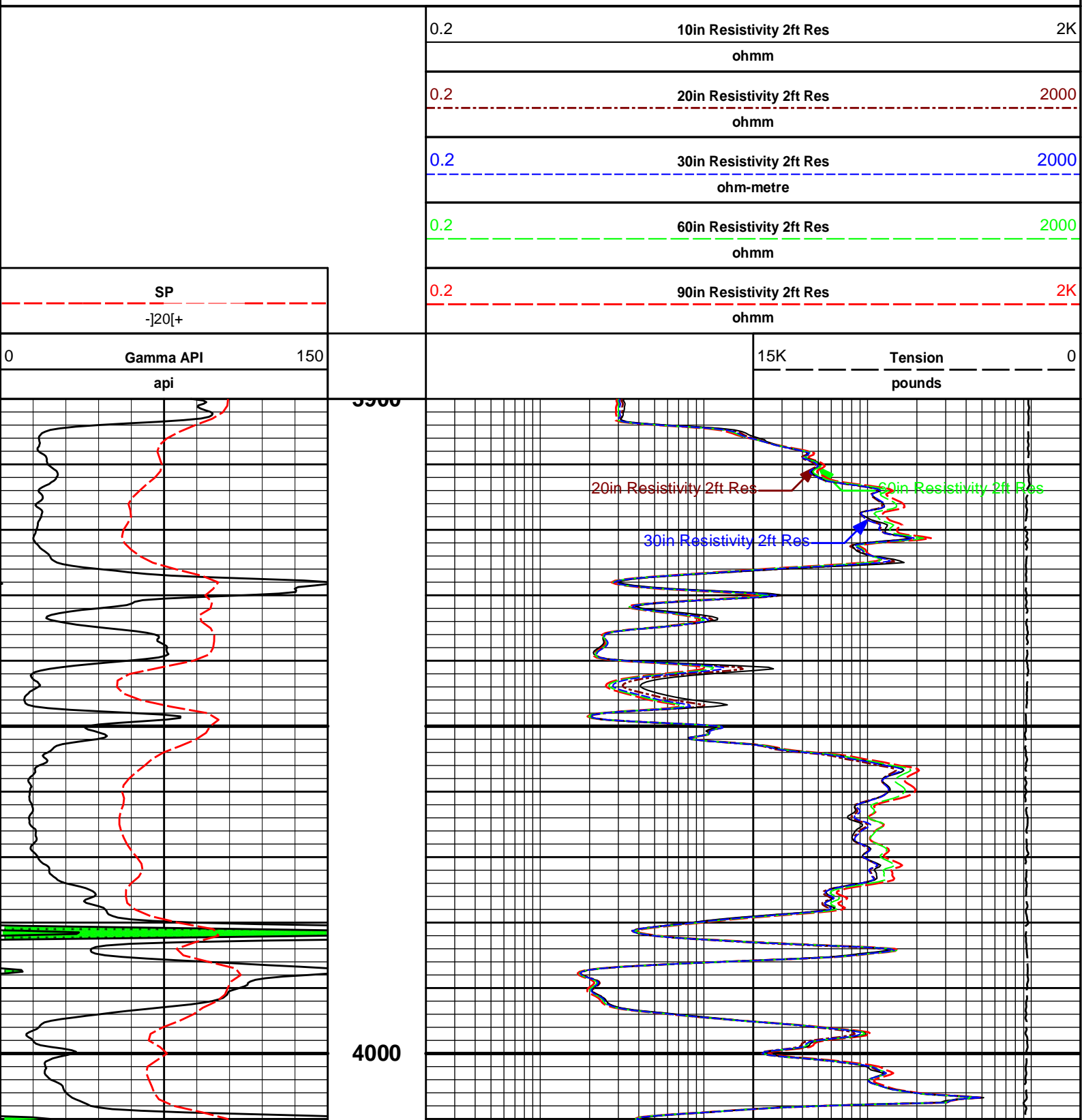
Plot Time: 09-Nov-19 11:05:58  
 Plot Range: 250 ft to 4403.67 ft  
 Data: RUSSELL\_NEWMANWell Based\MAIN\_MERGE\  
 Plot File: \\-LOCAL-RUSSELL\_NEWMAN\0001 GTET-DSN-SDL-ACRT\ACRT\ACRT\_5inch\_main

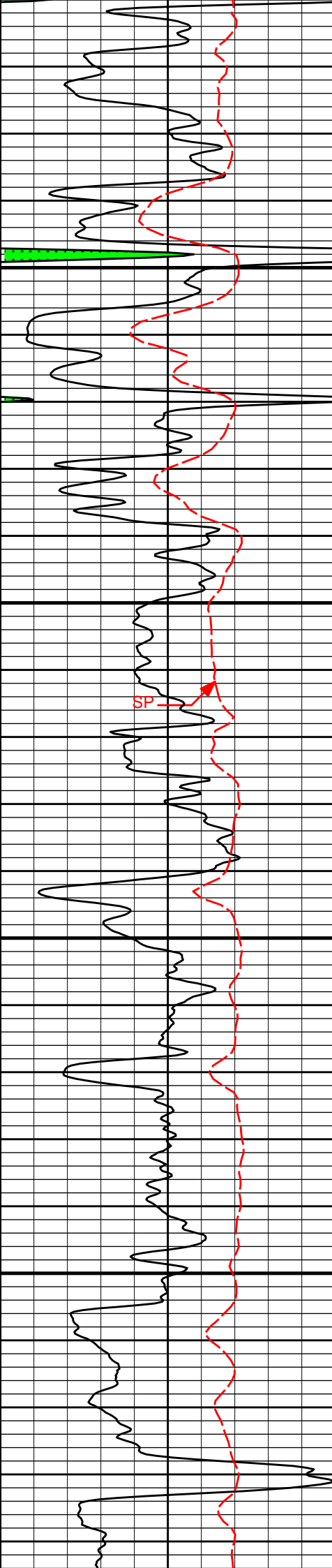
**5 INCH MAIN LOG**

**5 INCH MAIN LOG**

# REPEAT SECTION

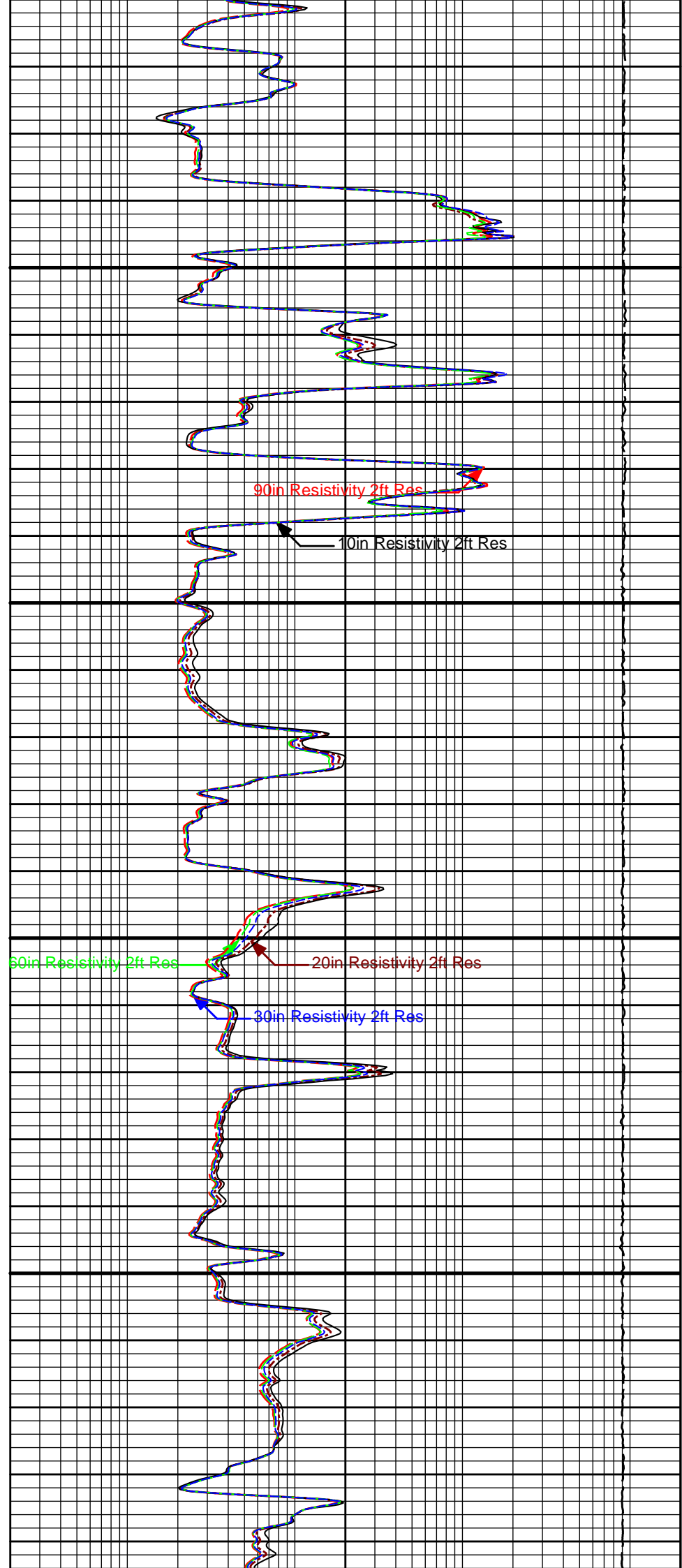
## REPEAT SECTION

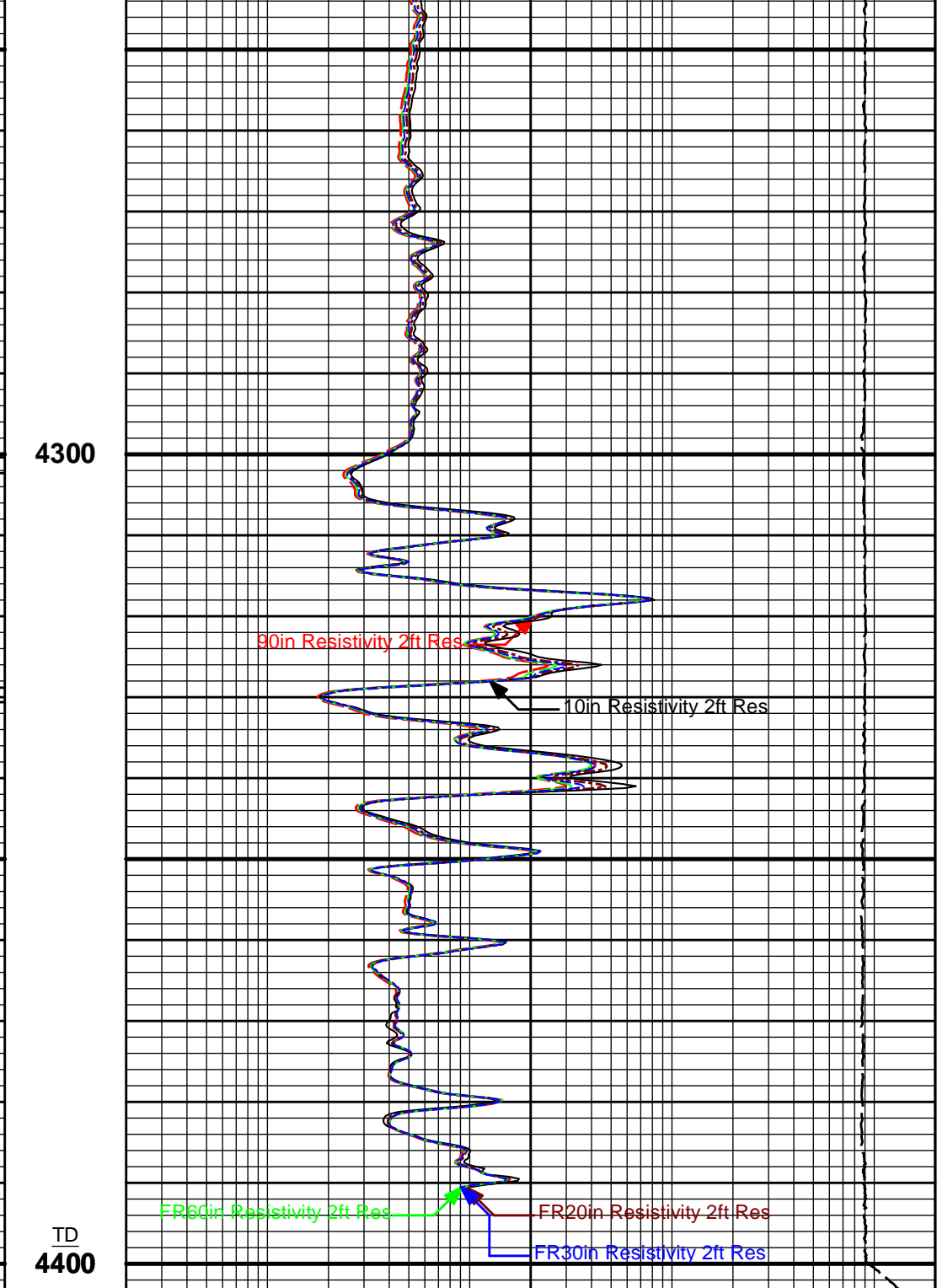
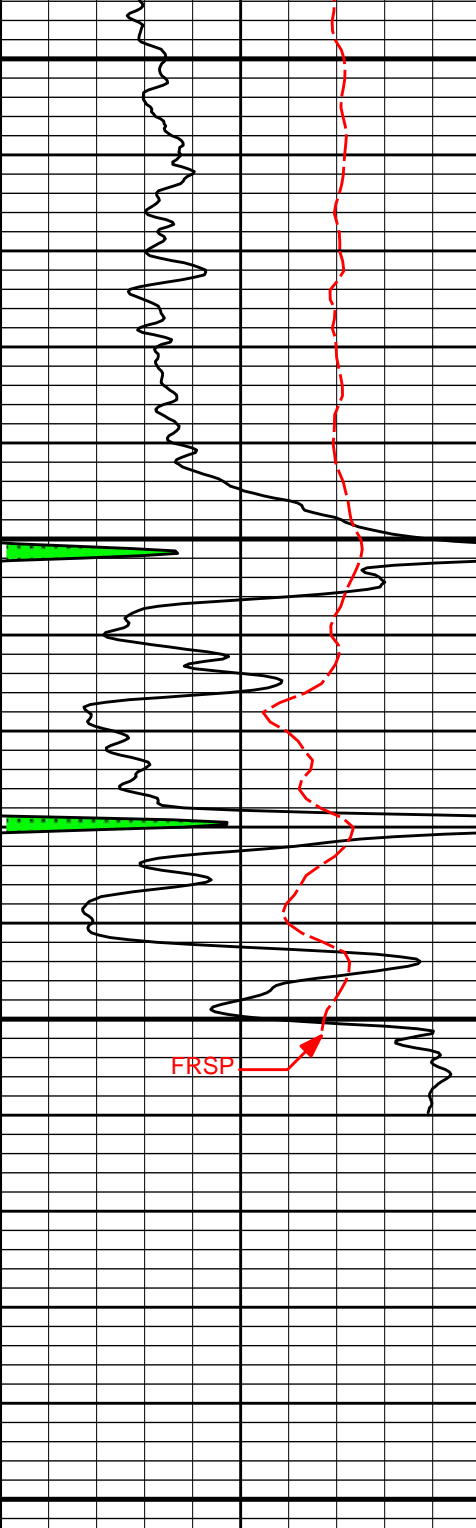




4100

4200





0	Gamma API	150
	api	

	SP	
	- 20 +	

	15K	Tension	0
		pounds	

0.2	90in Resistivity 2ft Res	2K
	ohmm	

0.2	60in Resistivity 2ft Res	2000
	ohmm	

0.2	30in Resistivity 2ft Res	2000
	ohm-metre	

0.2	20in Resistivity 2ft Res	2000
	ohmm	

0.2	10in Resistivity 2ft Res	2K
	ohmm	

**HALLIBURTON**

Plot Time: 09-Nov-19 11:06:00  
 Plot Range: 3900 ft to 4403.25 ft  
 Data: RUSSELL\_NEWMANWell Based\DAQ-0001-002\  
 Plot File: \\-LOCAL-RUSSELL\_NEWMAN\0001 GTET-DSN-SDL-ACRTACRTACRT\_5inch\_main

# REPEAT SECTION

## REPEAT SECTION

**HALLIBURTON**

### CALIBRATION REPORT

#### SURFACE TENSION SHOP CALIBRATION

Tool Name: Depth Panel - 00000032 Reference Calibration Date: 18-Oct-19 08:14:38  
Engineer: JORGE ORLANDO PEREZ Calibration Date: 02-Nov-19 07:11:44  
Software Version: WL INSITE R6.2.7 (Build 7) Calibration Version: 1

#### SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10002.34	-20.40	0.00	lbs
High	17218.88	7839.56	7830.00	lbs

#### DOWNHOLE TENSION SHOP CALIBRATION

Tool Name: RWCH - 11830866 Reference Calibration Date: 30-Oct-19 11:42:39  
Engineer: JORGE ORLANDO PEREZ Calibration Date: 02-Nov-19 07:14:22  
Software Version: WL INSITE R6.2.7 (Build 7) Calibration Version: 1

#### DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	-415.80	-20444.99	0.00	lbs
High	1076.38	115004.76	764.10	lbs

#### NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11013113 Reference Calibration Date: 06-Sep-19 13:50:19  
Engineer: WHITLOCK Calibration Date: 23-Oct-19 10:38:45  
Software Version: WL INSITE R6.2.7 (Build 7) Calibration Version: 1

Calibrator Source S/N: TB79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units
Background	25.3	25.6	api
Background + Calibrator	248.3	251.5	api
Calibrator	223.0	225.9	api

#### NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11013113 Reference Calibration Date: 23-Oct-19 10:38:45  
Engineer: WHITLOCK Calibration Date: 07-Nov-19 10:11:25  
Software Version: WL INSITE R6.2.7 (Build 7) Calibration Version: 1

Calibrator Source S/N: TB79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	25.6	22.1	api
Background + Calibrator	251.5	249.9	api

Background + Calibrator	251.5	249.2	api
Calibrator	225.9	227.1	api

Shop	Field	Difference	Tolerance
225.9	227.1	-1.2	+/- 9.00

### DUAL SPACED NEUTRON SHOP CALIBRATION

**Tool Name:** DSNT - 11055304      **Reference Calibration Date:** 22-Aug-19 14:12:28  
**Engineer:** WOLTEMATH      **Calibration Date:** 22-Aug-19 14:39:04  
**Software Version:** WL INSITE R6.2.7 (Build 7)      **Calibration Version:** 1

Logging Source S/N: DSN-436  
 Tank Serial Number: 10730320  
 Reference value assigned to Tank: 56.100  
 Snow Block S/N: 12156883  
 Calibration Tank Water Temperature: 80 degF  
 Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.04178	1.04096	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2360	0.2358	0.0002	+/- 0.0020
Calibrated Ratio:	10.5680	10.5597	0.008	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0796	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

### DUAL SPACED NEUTRON FIELD CALIBRATION

**Tool Name:** DSNT - 11055304      **Reference Calibration Date:** 22-Aug-19 14:39:04  
**Engineer:** WHITLOCK      **Calibration Date:** 07-Nov-19 10:31:22  
**Software Version:** WL INSITE R6.2.7 (Build 7)      **Calibration Version:** 1

Logging Source S/N: DSN-436  
 Snow Block S/N: 12156883

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0796	0.0841	0.0045	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

### DENSITY CALIPER SHOP CALIBRATION

**Tool Name:** SDLT - 10960494      **Reference Calibration Date:** 04-Nov-19 15:23:08  
**Engineer:** M. RICHTER      **Calibration Date:** 04-Nov-19 15:28:51  
**Software Version:** WL INSITE R6.2.7 (Build 7)      **Calibration Version:** 1

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4776.57	-4909.59	-7000.00 - -1000.00
Pad Gain	0.0003889	0.0003957	0.0002000 - 0.0006000
Arm Offset	-3625.30	-3353.87	-5000.00 - 3000.00
Arm Gain	0.0005621	0.0005296	0.000300 - 0.000700
Arm Power	-0.000006720	-0.000004566	-0.000010000 - 0.000010000

The ring diameter is computed from:  $DIAMETER = PAD\ EXTENSION + ARM\ EXTENSION + TOOL\ DIAMETER$   
 Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.33	8.25	-0.08	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed
PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

**SDLT CALIPER FIELD CALIBRATION**

**Tool Name:** SDLT - 10960494      **Reference Calibration Date:** 04-Nov-19 15:28:51  
**Engineer:** M. RICHTER      **Calibration Date:** 04-Nov-19 15:31:16  
**Software Version:** WL INSITE R6.2.7 (Build 7)      **Calibration Version:** 1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.80	0.05	+/- 0.10
Ring Diameter	8.25	8.26	0.01	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

**ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION**

**Tool Name:** ACRt Sonde - 11830728      **Reference Calibration Date:** 13-Sep-19 20:21:53  
**Engineer:** JORGE ORLANDO PEREZ      **Calibration Date:** 05-Nov-19 10:54:27  
**Software Version:** WL INSITE R6.2.7 (Build 7)      **Calibration Version:** 1  
**Host Tool Name:** ACRt Instrument - 11830684

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0307	1.05	0.95	1.0095	1.05	0.95	1.0014	1.05
A2 (50")	0.95	1.0359	1.05	0.95	1.0171	1.05	0.95	1.0115	1.05
A3 (29")	0.95	1.0310	1.05	0.95	1.0100	1.05	0.95	1.0035	1.05
A4 (17")	0.95	1.0328	1.05	0.95	1.0101	1.05	0.95	1.0052	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0004	1.05	0.95	0.9977	1.05

A5 (10")	N/A	N/A	N/A	0.95	1.0034	1.05	0.95	0.9977	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.0043	1.05	0.95	0.9978	1.05

**SONDE OFFSET**

Subarray	R12KHz			R36KHz			R72KHz		
	(mmho/m)			(mmho/m)			(mmho/m)		
A1 (80")	-0.808			-5.207			-5.601		
A2 (50")	0.511			-3.609			-5.279		
A3 (29")	-12.434			-3.950			-3.771		
A4 (17")	-94.775			-29.778			-24.358		
A5 (10")	N/A			-73.178			-36.258		
A6 (6")	N/A			286.240			152.126		

**TRANSMITTER CURRENT GAIN**

Signal	Lower	R	Upper
12K	0.6	0.83	1.3
36K	1.0	1.81	2.0
72K	1.0	1.07	2.0

**R-MUD VERIFICATION**

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.99	1.05

**PASS/FAIL SUMMARY**

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

**QUALITY CHECK SHOP CALIBRATION**

<b>Tool Name:</b>	ACRt Sonde - 11830728	<b>Reference Calibration Date:</b>	05-Nov-19 10:56:55
<b>Engineer:</b>	JORGE ORLANDO PEREZ	<b>Calibration Date:</b>	05-Nov-19 10:58:40
<b>Software Version:</b>	WL INSITE R6.2.7 (Build 7)	<b>Calibration Version:</b>	1
<b>Host Tool Name:</b>	ACRt Instrument - 11830684		

**STANDARD DEVIATIONS**

	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A2 (50")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A3 (29")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A4 (17")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A5 (10")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A6 (6")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass

**AVERAGES**

	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.006	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.005	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.003	> -0.500	Pass
A4 (17")	-0.002	> -0.500	Pass	-0.007	> -0.500	Pass	-0.023	> -0.500	Pass
A5 (10")	-0.010	> -0.500	Pass	-0.016	> -0.500	Pass	-0.035	> -0.500	Pass
A6 (6")	0.014	< 0.500	Pass	0.063	< 0.500	Pass	0.138	< 0.500	Pass

**GAIN TOLERANCE**

R12KHz

**R12KHZ**

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-211017504.000	-210963520.000	53984.000	10548176.000	Pass
A2 (50")	-201063376.000	-201001456.000	61920.000	10050072.800	Pass
A3 (29")	-202298688.000	-202236272.000	62416.000	10111813.600	Pass
A4 (17")	-196769472.000	-196710160.000	59312.000	9835508.000	Pass
A5 (10")	-197638496.000	-197576928.000	61568.000	9878846.400	Pass
A6 (6")	-195283936.000	-195215792.000	68144.000	9760789.600	Pass

**R36KHZ**

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	45235592.000	45171552.000	64040.000	2258577.600	Pass
A2 (50")	31200082.000	31135516.000	64566.000	1556775.800	Pass
A3 (29")	26374304.000	26310728.000	63576.000	1315536.400	Pass
A4 (17")	25347108.000	25294182.000	52926.000	1264709.100	Pass
A5 (10")	25069158.000	25011902.000	57256.000	1250595.100	Pass
A6 (6")	23372746.000	23316728.000	56018.000	1165836.400	Pass

**R72KHZ**

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-91706976.000	-91683616.000	23360.000	4584180.800	Pass
A2 (50")	-88067264.000	-88037528.000	29736.000	4401876.400	Pass
A3 (29")	-88500760.000	-88474728.000	26032.000	4423736.400	Pass
A4 (17")	-86378136.000	-86351184.000	26952.000	4317559.200	Pass
A5 (10")	-85383264.000	-85355336.000	27928.000	4267766.800	Pass
A6 (6")	-85585888.000	-85556056.000	29832.000	4277802.800	Pass

**PASS/FAIL SUMMARY**

Std Deviation Verification	Pass
Average Verification	Pass
Gain Tolerance Verification	Pass

**MICRO LOG SHOP CALIBRATION**

<b>Tool Name:</b> Microlog Pad - 10960494	<b>Reference Calibration Date:</b> 31-Oct-19 14:33:51
<b>Engineer:</b> WHITLOCK	<b>Calibration Date:</b> 07-Nov-19 10:19:23
<b>Software Version:</b> WL INSITE R6.2.7 (Build 7)	<b>Calibration Version:</b> 1
<b>Host Tool Name:</b> DSNT - 11055304	

**CALIBRATION COEFFICIENT SUMMARY**

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.10	-0.14	-0.01	-0.01	ohmm
Calibration Point #1	0.04	0.00	-0.01	0.00	ohmm
Calibration Point #2	20.09	20.00	20.01	20.00	ohmm
Internal Reference	19.95	19.86	20.04	20.02	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-5.49	-0.73	V
Calibration Point #1	32.76	1.11	V
Calibration Point #2	5354.31	6888.30	V
Internal Reference	5317.63	6895.72	V

**MICRO LOG FIELD CHECK**

<b>Tool Name:</b> Microlog Pad - 10960494	<b>Reference Calibration Date:</b> 07-Nov-19 10:19:23
<b>Engineer:</b> WHITLOCK	<b>Calibration Date:</b> 07-Nov-19 10:20:13
<b>Software Version:</b> WL INSITE R6.2.7 (Build 7)	<b>Calibration Version:</b> 1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.14	-0.12	-0.01	-0.00	ohmm
Internal Reference	19.86	19.87	20.02	20.03	ohmm
Summary					
Signal	Shop	Field	Difference	Tolerance	
Microlog Normal	19.86	19.87	-0.01	+/- 0.80	
Microlog Lateral	20.02	20.03	-0.01	+/- 0.80	

### SPECTRAL DENSITY SHOP CALIBRATION

<b>Tool Name:</b> SDLT Pad - 11213308	<b>Reference Calibration Date:</b> 23-Aug-19 13:54:16
<b>Engineer:</b> WOLTEMATH	<b>Calibration Date:</b> 23-Aug-19 14:21:32
<b>Software Version:</b> WL INSITE R6.2.7 (Build 7)	<b>Calibration Version:</b> 1

Logging Source S/N: 5475GW

Aluminum Block S/N: 63067

Density: 2.581g/cc

Pe: 3.170

Magnesium Block S/N: 63358

Density: 1.687g/cc

Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0035	1.0251	0.90 - 1.10
Near Dens Gain	0.9864	1.0119	0.90 - 1.10
Near Peak Gain	0.9964	1.0219	0.90 - 1.10
Near Lith Gain	0.9980	1.0302	0.90 - 1.10
Far Bar Gain	1.0048	1.0058	0.90 - 1.10
Far Dens Gain	0.9927	0.9950	0.90 - 1.10
Far Peak Gain	0.9899	0.9927	0.90 - 1.10
Far Lith Gain	0.9731	0.9727	0.90 - 1.10
Near Bar Offset	0.1179	-0.0816	NONE
Near Dens Offset	0.2714	0.0443	NONE
Near Peak Offset	0.1602	-0.0546	NONE
Near Lith Offset	0.1146	-0.1575	NONE
Far Bar Offset	0.0293	0.0219	NONE
Far Dens Offset	0.1505	0.1307	NONE
Far Peak Offset	0.1477	0.1245	NONE
Far Lith Offset	0.2309	0.2352	NONE
Near Bar Background	928.16	927.86	700 - 1450
Near Dens Background	309.39	308.18	230 - 480
Near Peak Background	135.94	135.97	100 - 210
Near Lith Background	164.35	163.99	125 - 260
Far Bar Background	470.03	472.28	450 - 900
Far Dens Background	188.64	187.22	175 - 345
Far Peak Background	75.92	76.21	70 - 140
Far Lith Background	76.82	77.51	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.687	0.001	+/- 0.015
Pe	2.567	2.561	-0.006	+/- 0.150
ALUMINUM				
Density (g/cc)	2.582	2.580	-0.002	+/- 0.01500
Pe	3.117	3.134	0.017	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	-0.0008	+/- 0.0140
Magnesium Block	0.0001	+/- 0.0110	-0.0002	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	0.0010	+/- 0.0140
Resolution	9.31	6.00 - 11.50	9.26	6.00 - 11.50
Internal Verifier(B+D+P+L)	1536	1200 - 2700	813	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK			
Tool Name:	SDLT Pad - 11213308	Reference Calibration Date:	23-Aug-19 14:21:32
Engineer:	WHITLOCK	Calibration Date:	07-Nov-19 10:09:54
Software Version:	WL INSITE R6.2.7 (Build 7)	Calibration Version:	1

Pad Temperature: 71.7 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1535.997	1527.229	-8.768	15.780
Far (B+D+P+L) cps	813.216	803.660	-9.556	15.754
Near Resolution	9.31	9.30	-0.010	0.50
Far Resolution	9.26	9.42	0.160	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
Depth Panel-00000032						
Tension Zero	0.00	-----	-----	0.00	-----	lbs
Tension Cal	7830.00	-----	-----	0.00	-----	lbs
RWCH-11830866						
DH Tension Zero	0.00	-----	-----	0.00	-----	lbs
DH Tension Cal	764.10	-----	-----	0.00	-----	lbs
GTET-11013113						
Gamma Ray Calibrator	225.9	227.1	-----	-1.2	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0796	0.0841	-----	-0.0045	+/- 0.0150	decp
SDLT-10960494						
Pad Extension	3.75	3.80	-----	-0.05	+/-0.10	in
Ring Diameter	8.25	8.26	-----	-0.01	+/-0.15	in
ACRt Sonde-11830728						
Mud Cell	0.99	-----	-----	0	-----	ohm-m

Microlog Pad-10960494						
MicroLog Normal	19.86	19.87	-----	-0.01	+/-0.80	ohmm
MicroLog Lateral	20.02	20.03	-----	-0.01	+/-0.80	ohmm
SDLT Pad-11213308						
Near(B+D+P+L)	1535.997	1527.229	-----	8.768	+/-15.780	cps
Far(B+D+P+L)	813.216	803.660	-----	9.556	+/-15.754	cps
Data: RUSSELL_NEWMAN0001 GTET-DSN-SDL-ACRTWDLR					Date: 09-Nov-19 06:56:00	

**HALLIBURTON**

## PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.800	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	CSTR	Compressive Strength	1000.00	psia
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4400.00	ft
	SHARED	BHT	Bottom Hole Temperature	125.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	CBM Temperature Master Tool	GTET	
	SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
	Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	SDLT	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	

DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm)	Recommended	0.250 in
DSNT	DNTT	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	UCLA	Classic Neutron Parameter utilized?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMAX	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	


BOTTOM

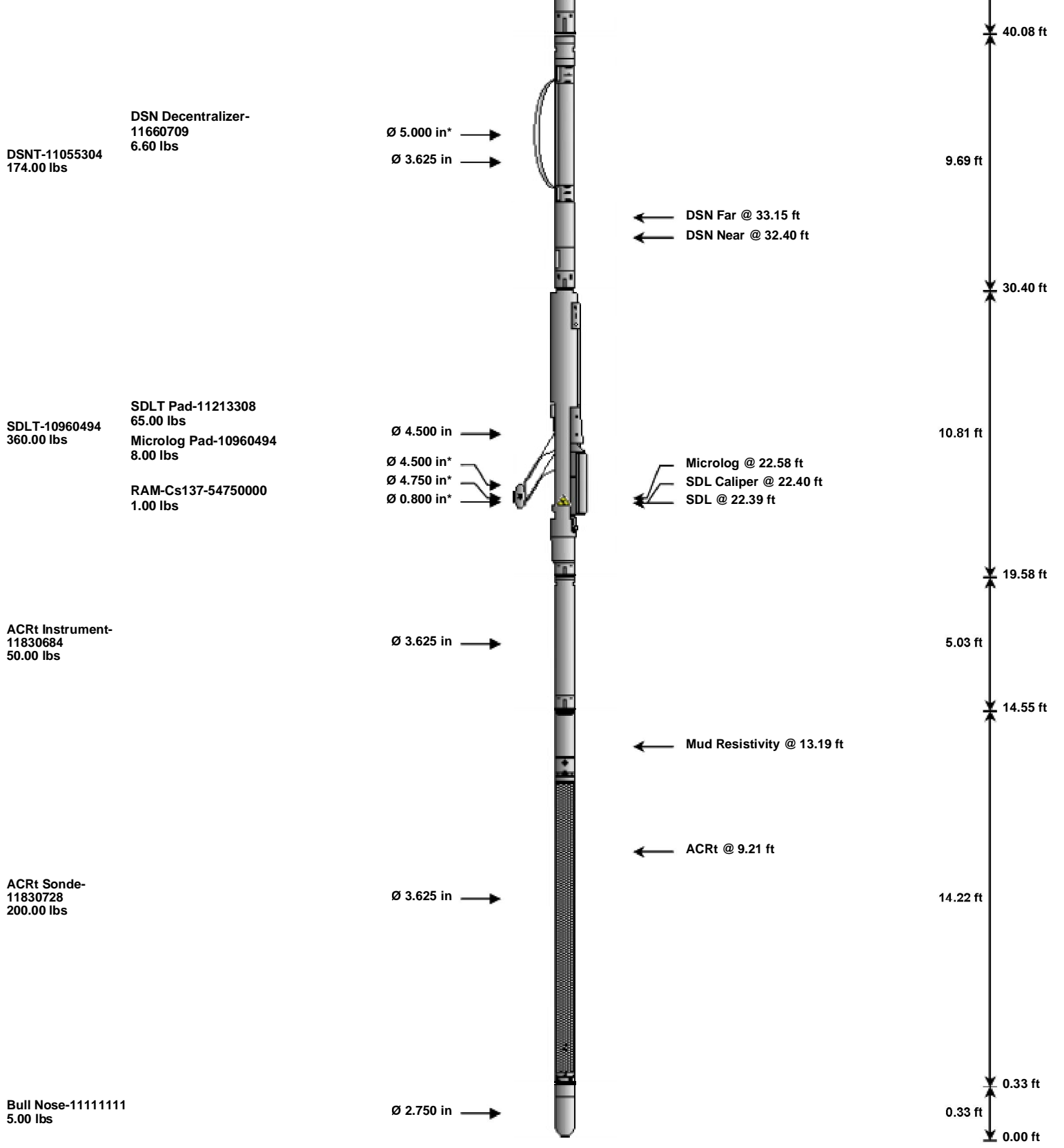
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Date: 09-Nov-19 06:56:54

**HALLIBURTON**

## TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
		Ø 2.310 in →		← Fishing Neck @ 57.71 ft		58.59 ft
RWCH-11830866 135.00 lbs	Weak Point Solid- 11111111 0.01 lbs	Ø 3.625 in →		← Load Cell @ 54.91 ft ← BH Temperature @ 54.34 ft	6.25 ft	
		Ø 0.010 in* →				52.34 ft
SP Sub-11812437 60.00 lbs		Ø 3.625 in →		← SP @ 50.56 ft	3.74 ft	
				← Z-Accelerometer @ 48.15 ft		48.60 ft
GTET-11013113 165.00 lbs		Ø 3.625 in →		← GammaRay @ 42.54 ft	8.52 ft	



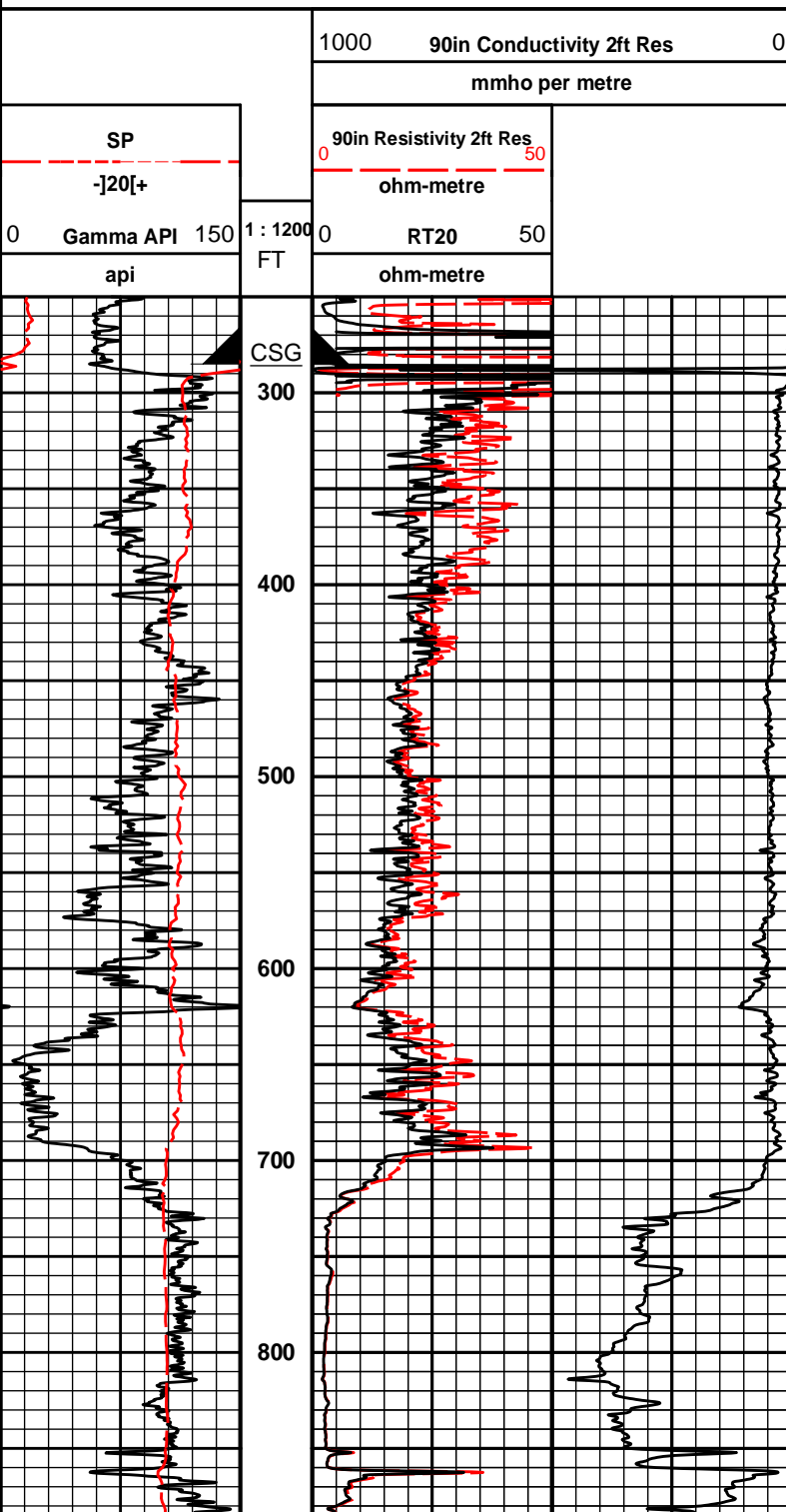
Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	11830866	135.00	6.25	52.34	300.00
WPSS	Weak Point Solid	11111111	0.01	0.01	* 52.34	300.00
SP	SP Sub	11812437	60.00	3.74	48.60	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52	40.08	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	30.40	60.00
DCNT	DSN Decentralizer	11660709	6.60	5.13	* 33.73	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81	19.58	60.00
SDLP	Density Insite Pad	11213308	65.00	2.55	* 21.79	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	54750000	1.00	0.80	* 22.02	300.00
MICP	Microlog Pad	10960494	8.00	1.00	* 22.08	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11830684	50.00	5.03	14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11830728	200.00	14.22	0.33	120.00
BLNS	Bull Nose	11111111	5.00	0.33	0.00	300.00
<b>Total</b>			<b>1,229.61</b>	<b>58.59</b>		

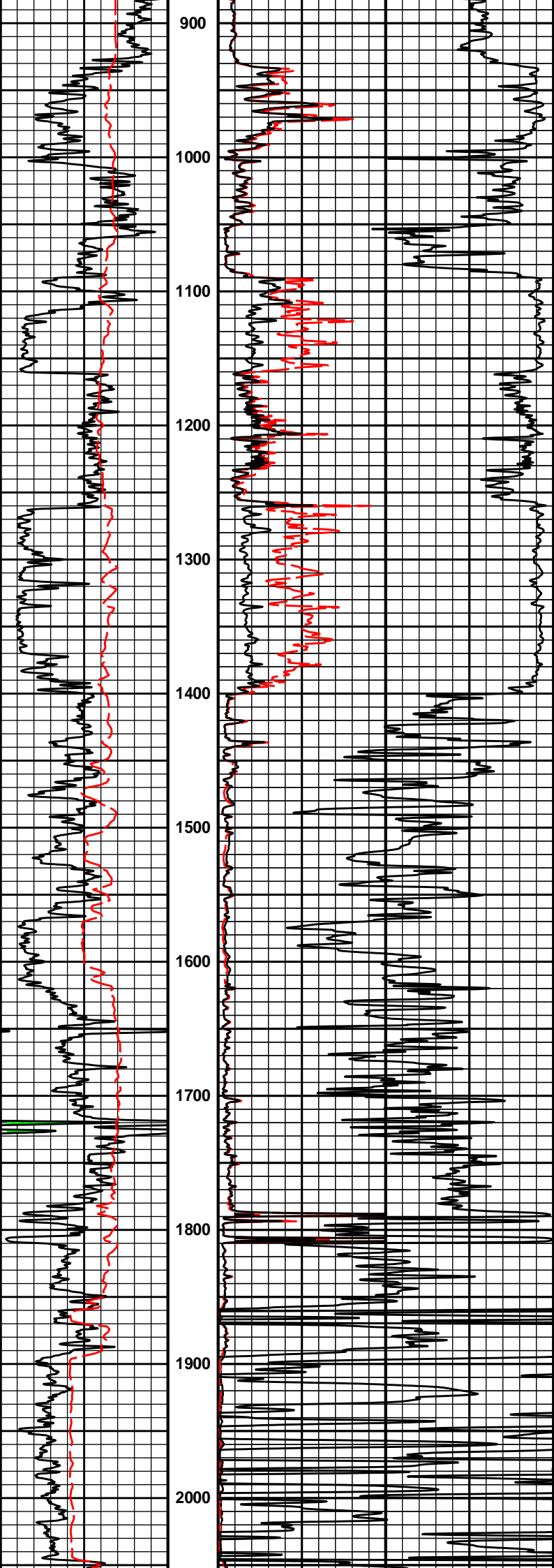
# HALLIBURTON

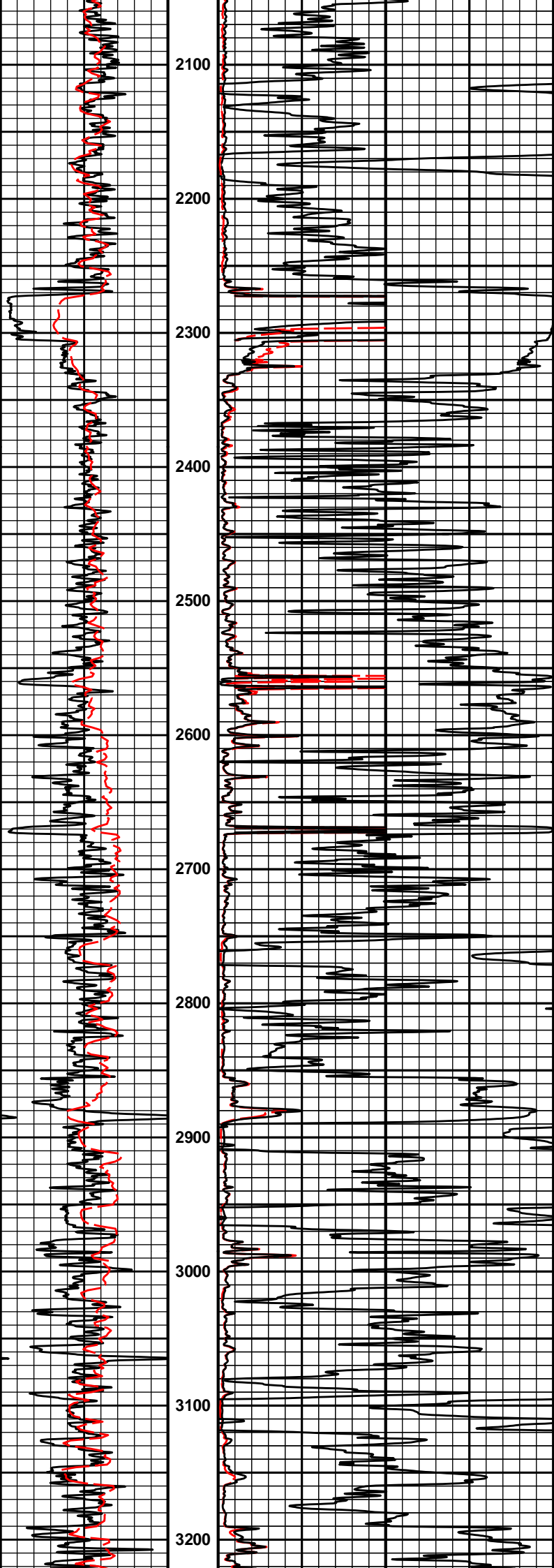
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Plot Range: 250 ft to 4403 ft  
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Plot File: \\LOCAL\RUSSELL\_NEWMAN0001 GTET-DSN-SDL-ACRT\ACRTACT\_1\_main

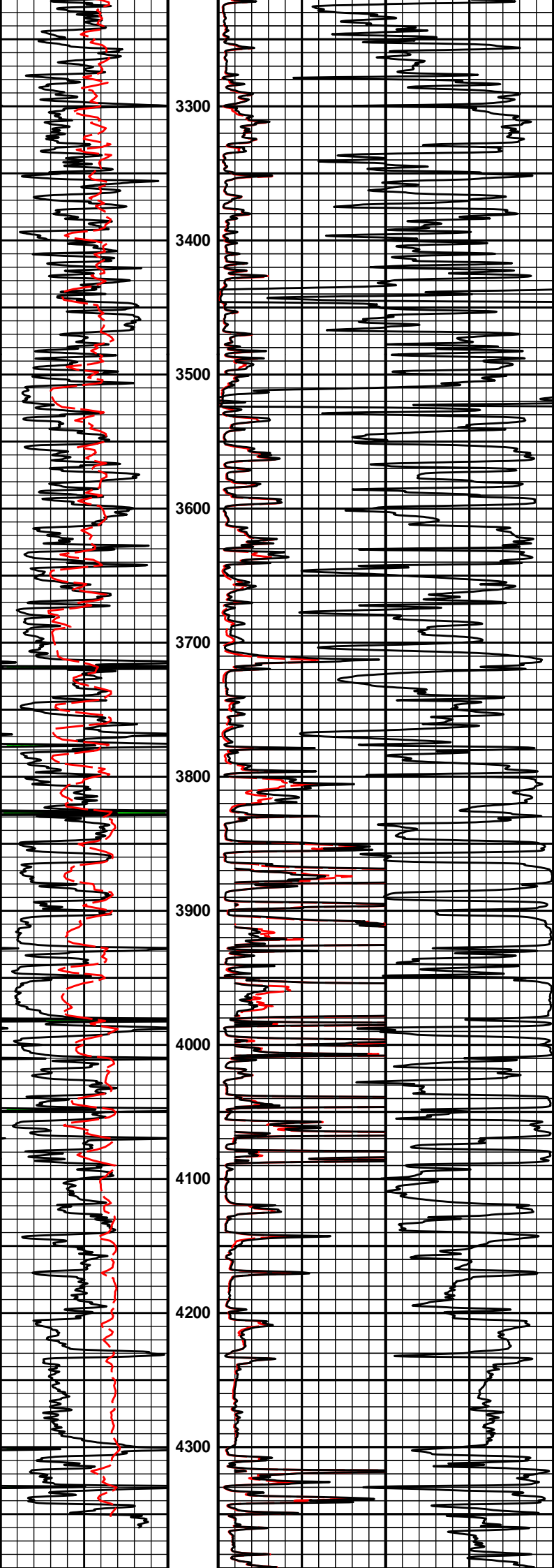
## 1 INCH MAIN LOG

### 1 INCH CORRELATION LOG









0	Gamma API	150	4400	0	RT20	50	
	api		1:1200 FT		ohm-metre		
	SP				90in Resistivity 2ft Res		
	-]20[+				ohm-metre		
				1000	90in Conductivity 2ft Res		0
					mmho per metre		

**HALLIBURTON**

Plot Time: 09-Nov-19 11:06:17  
 Plot Range: 250 ft to 4403 ft  
 Data: RUSSELL\_NEWMAN\Well Based\MAIN\_MERGE\  
 Plot File: \\LOCAL\RUSSELL\_NEWMAN0001 GTET-DSN-SDL-ACRTACRTACRT\_1\_main

**1 INCH MAIN LOG**

1 INCH CORRELATION LOG