

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.

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Plot Time: 17-Aug-19 12:53:07
 Plot Range: 1750 ft to 5508.58 ft
 Data: MERIT_EMMA_WARD\Well Based\DAQ-0001-003\
 Plot File: \\-LOCAL-MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\ACRT-5\ACRT_5inch_main

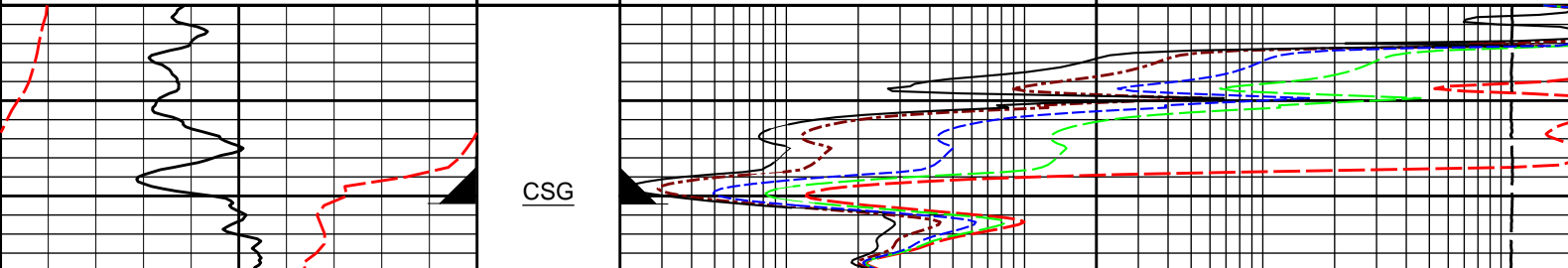
5 INCH MAIN LOG

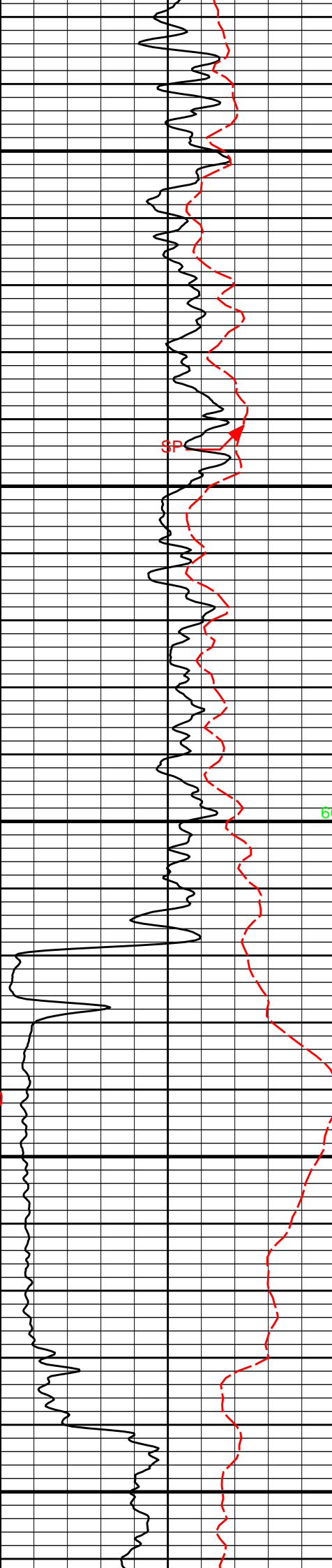
5 INCH MAIN LOG

0.2	10in Resistivity 2ft Res	2K
	ohmm	
0.2	20in Resistivity 2ft Res	2000
	ohmm	
0.2	30in Resistivity 2ft Res	2000
	ohm-metre	
0.2	60in Resistivity 2ft Res	2000
	ohmm	
0.2	90in Resistivity 2ft Res	2K
	ohmm	

SP	
- 20 +	
0	150
Gamma API	api

15K	Tension	0
	pounds	

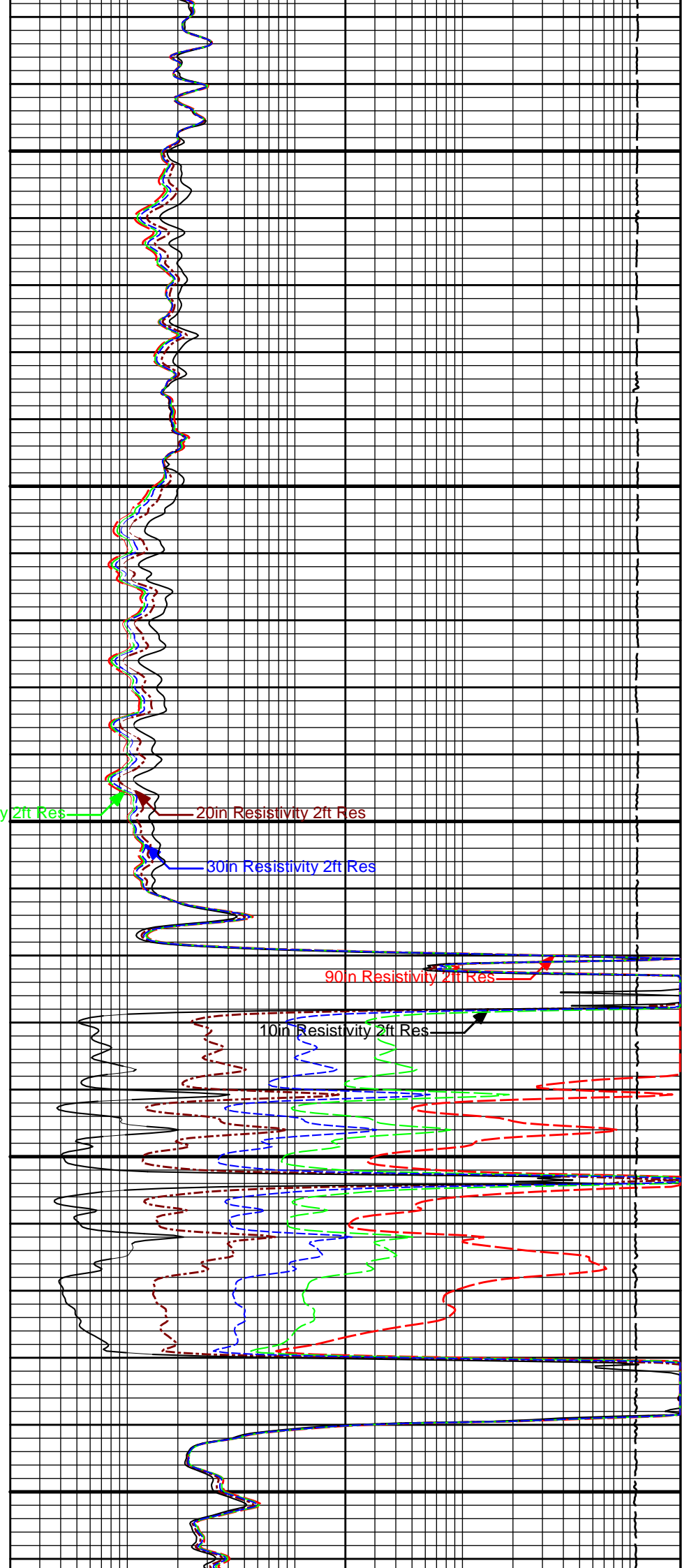




1800

1900

2000



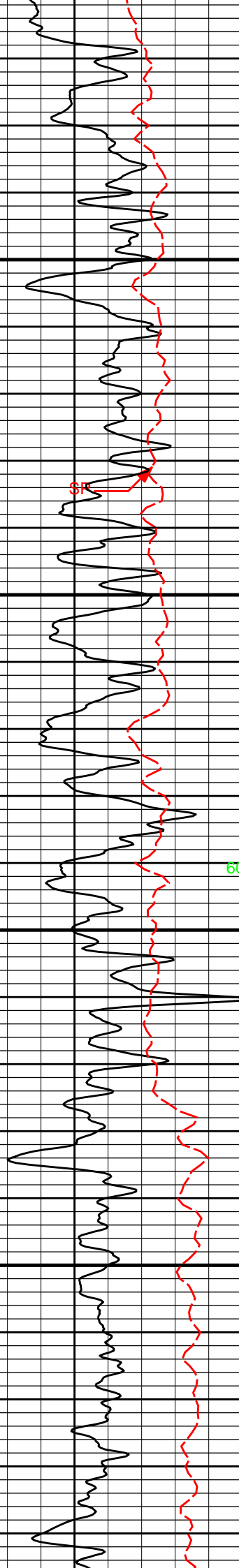
20in Resistivity 2ft Res

30in Resistivity 2ft Res

90in Resistivity 2ft Res

10in Resistivity 2ft Res

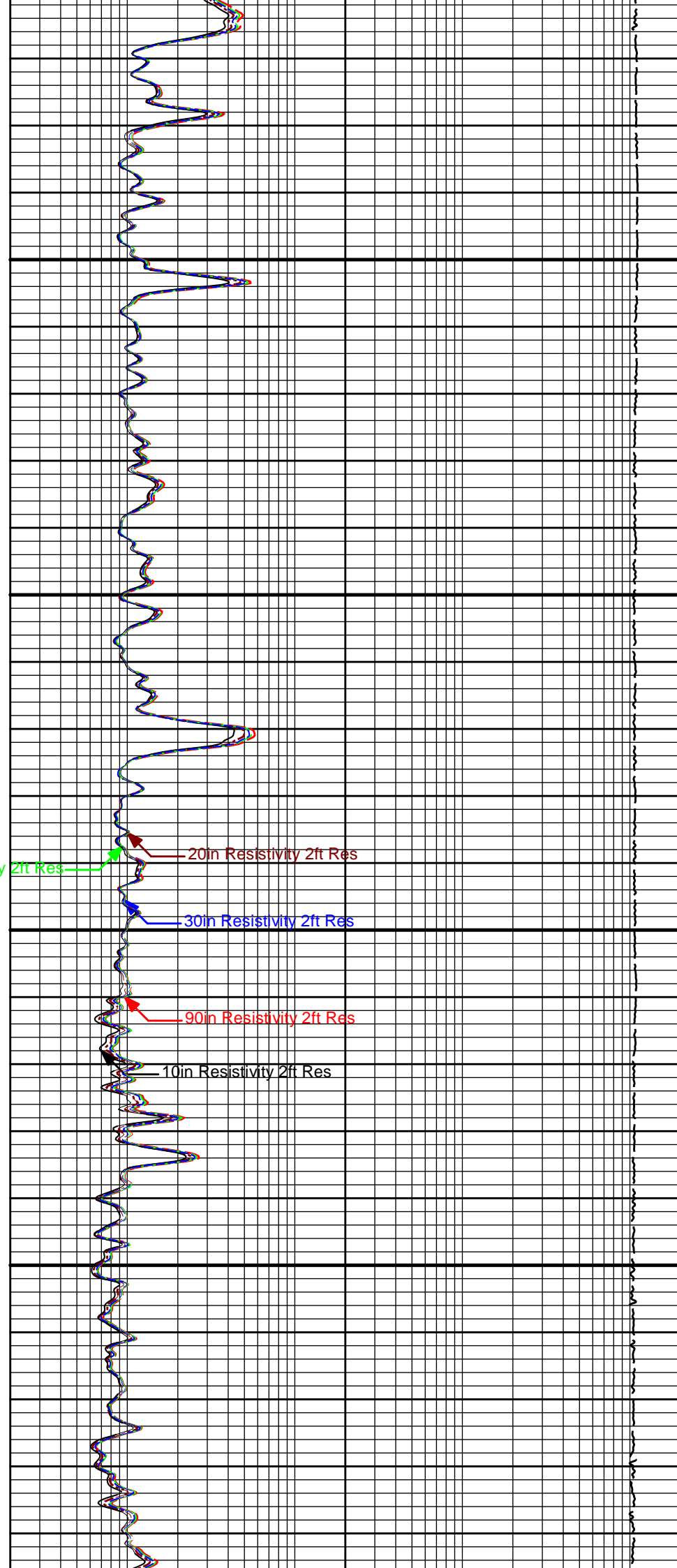
60in Resistivity 2ft Res



2100

60in Resistivity 2ft Res

2200

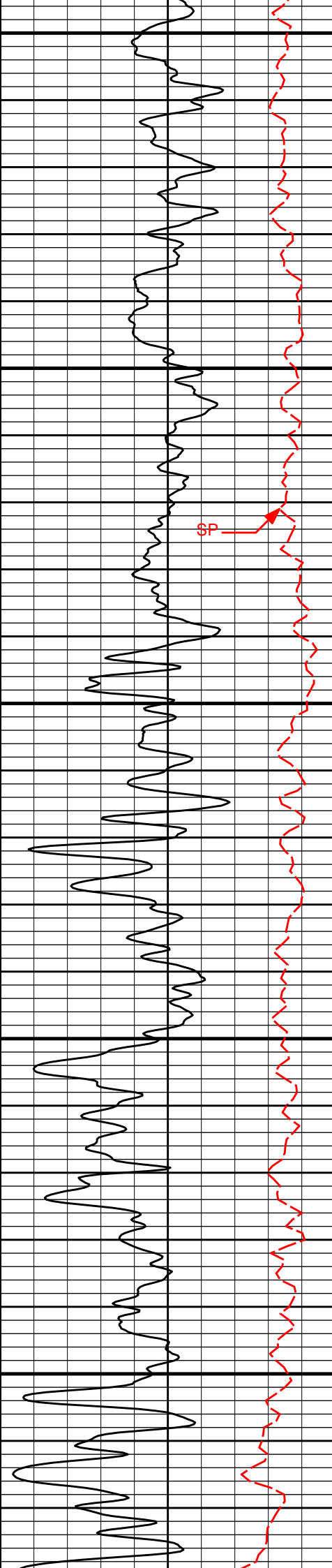


20in Resistivity 2ft Res

30in Resistivity 2ft Res

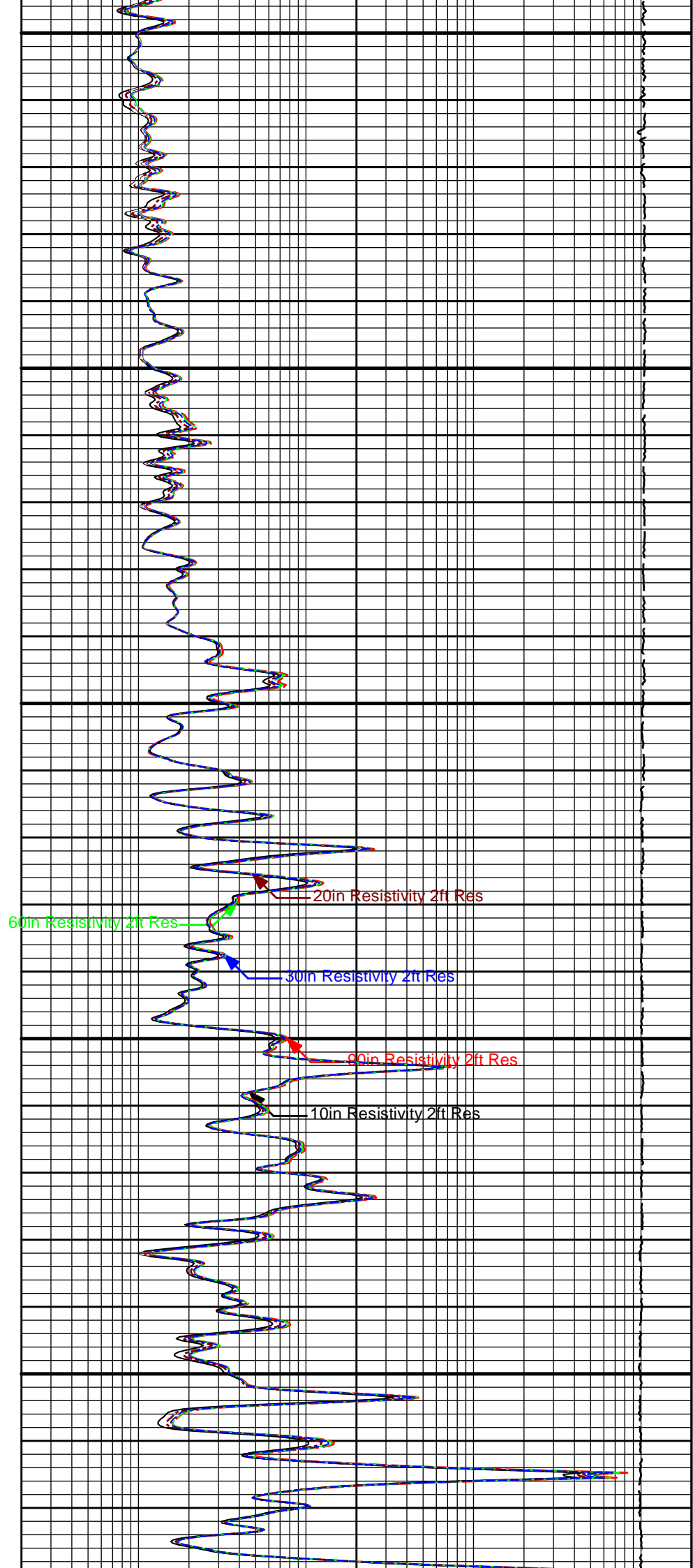
90in Resistivity 2ft Res

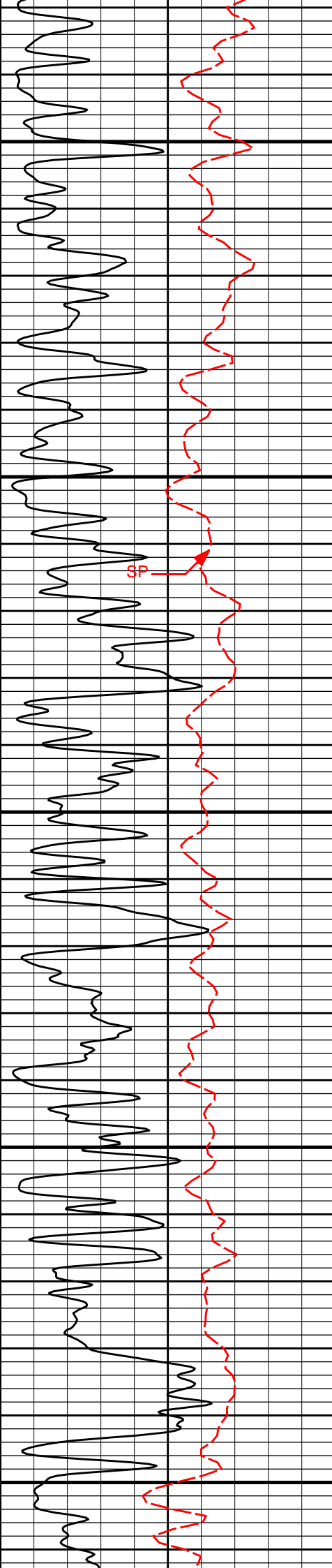
10in Resistivity 2ft Res



2300

2400

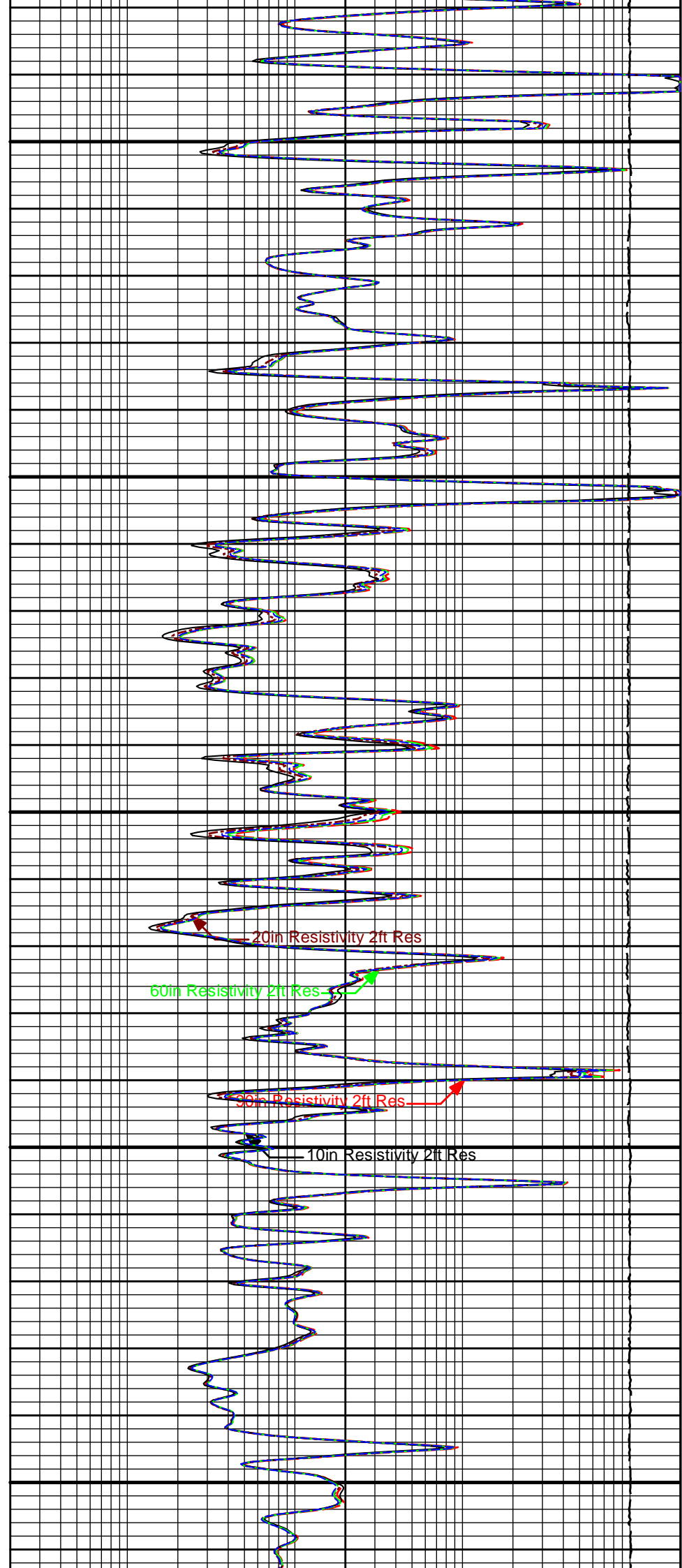


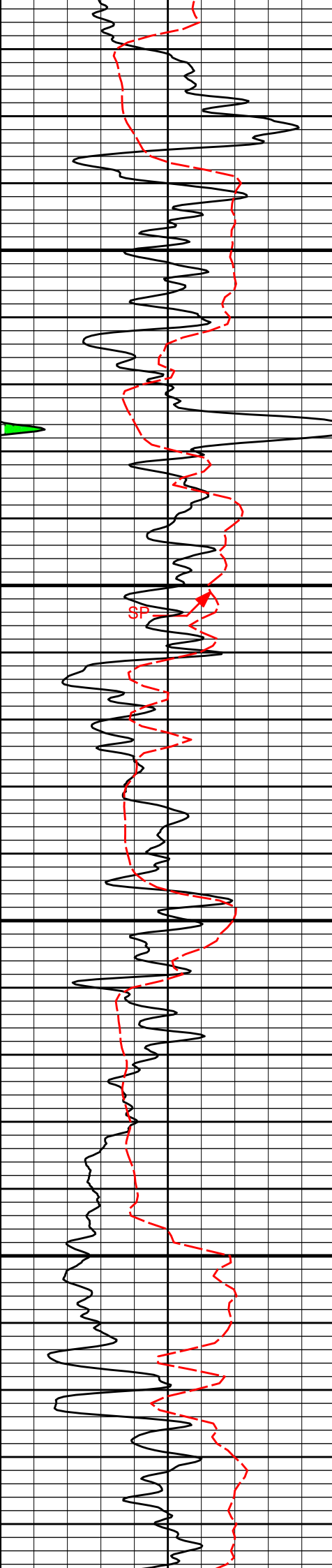


2500

2600

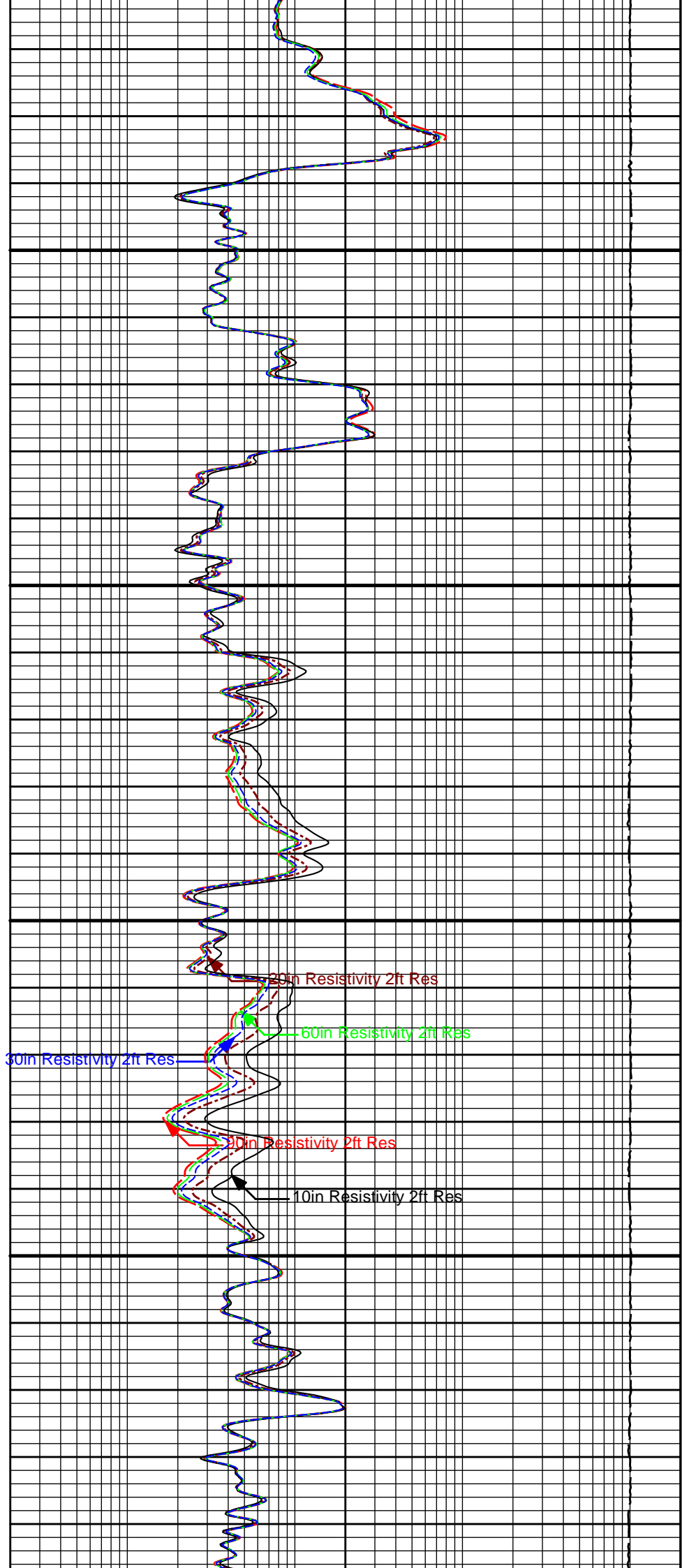
2700

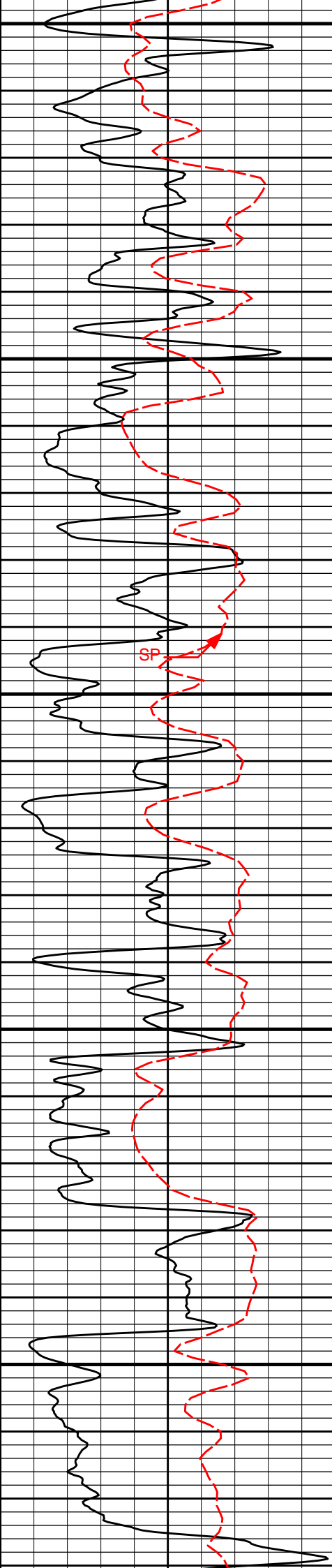




2800

2900





3000

3100

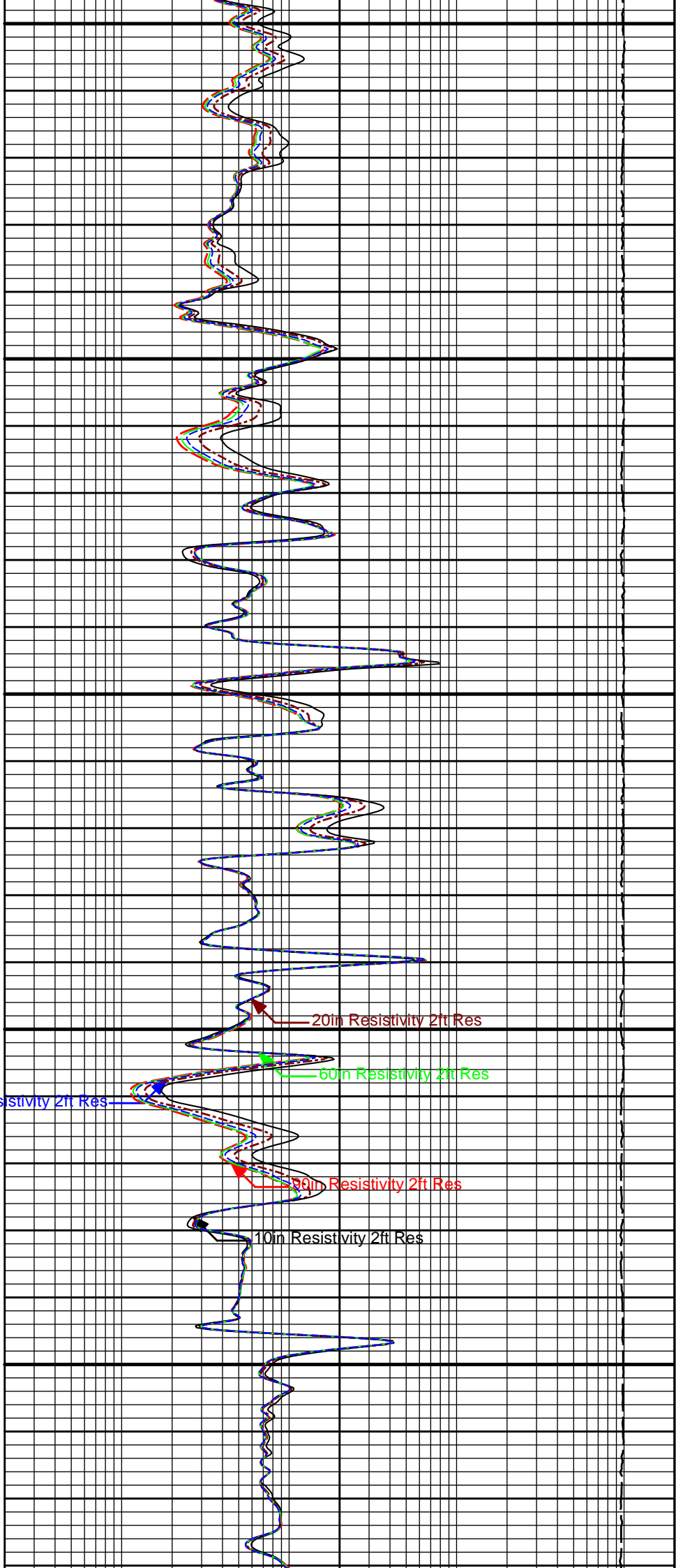
30in Resistivity 2ft Res

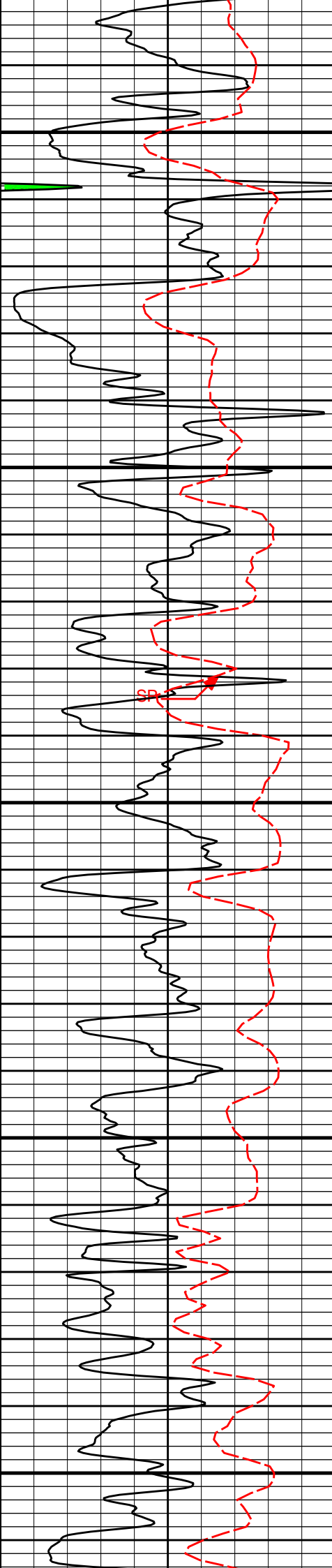
20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

10in Resistivity 2ft Res

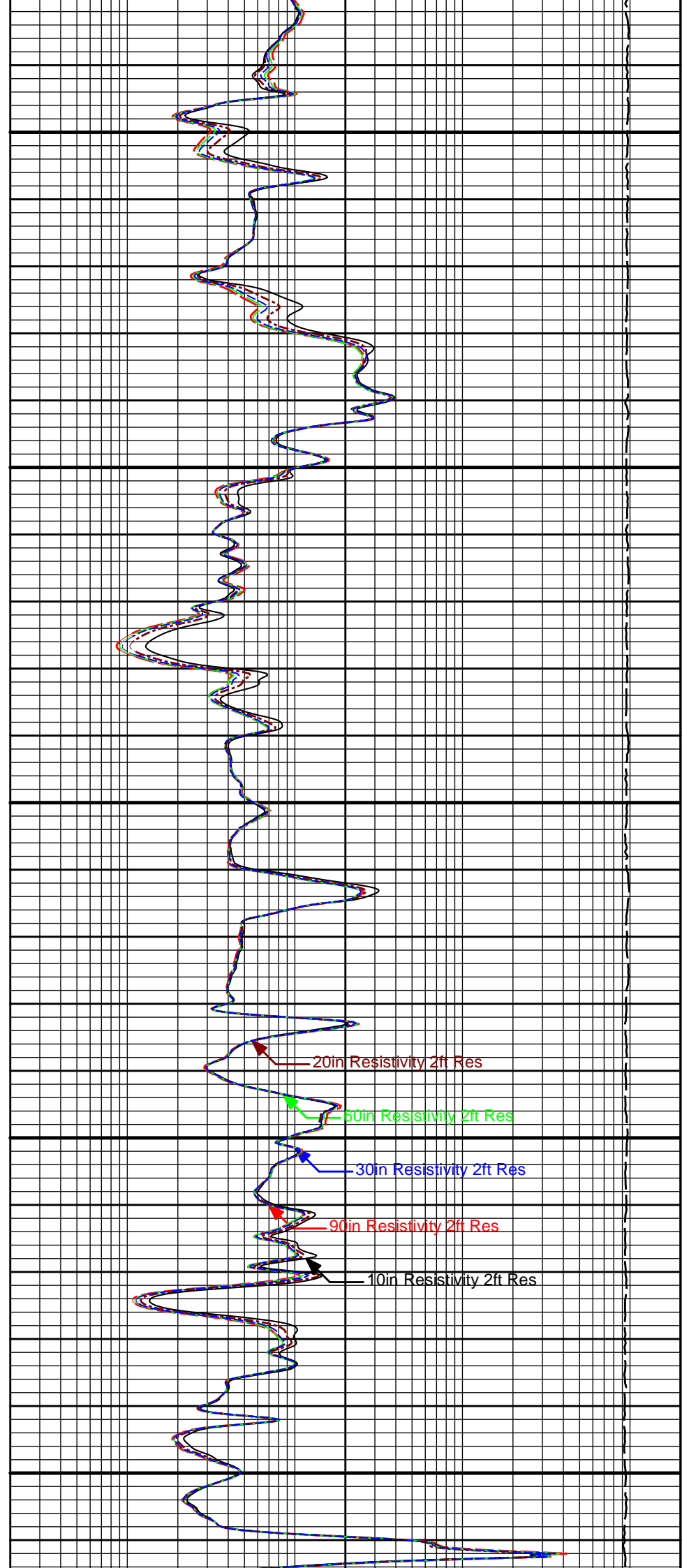




3200

3300

3400



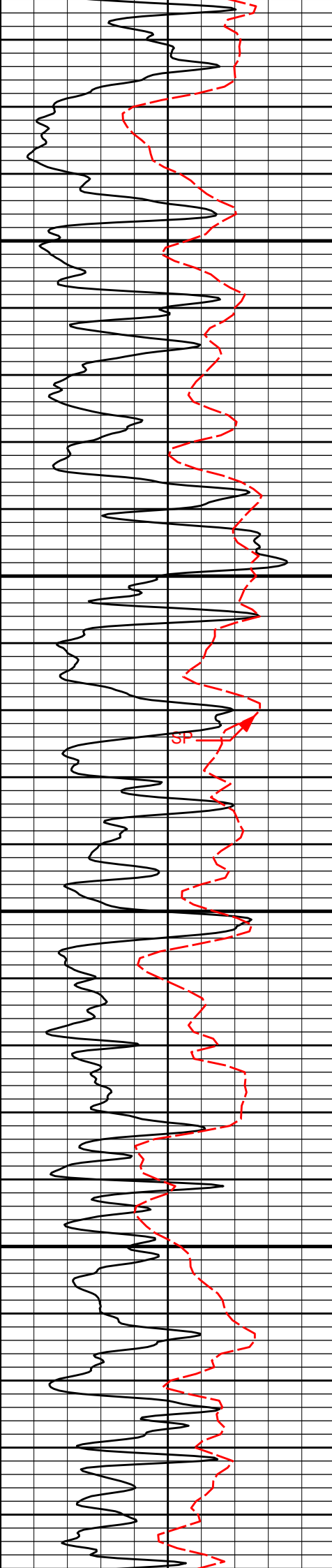
20in Resistivity 2ft Res

50in Resistivity 2ft Res

30in Resistivity 2ft Res

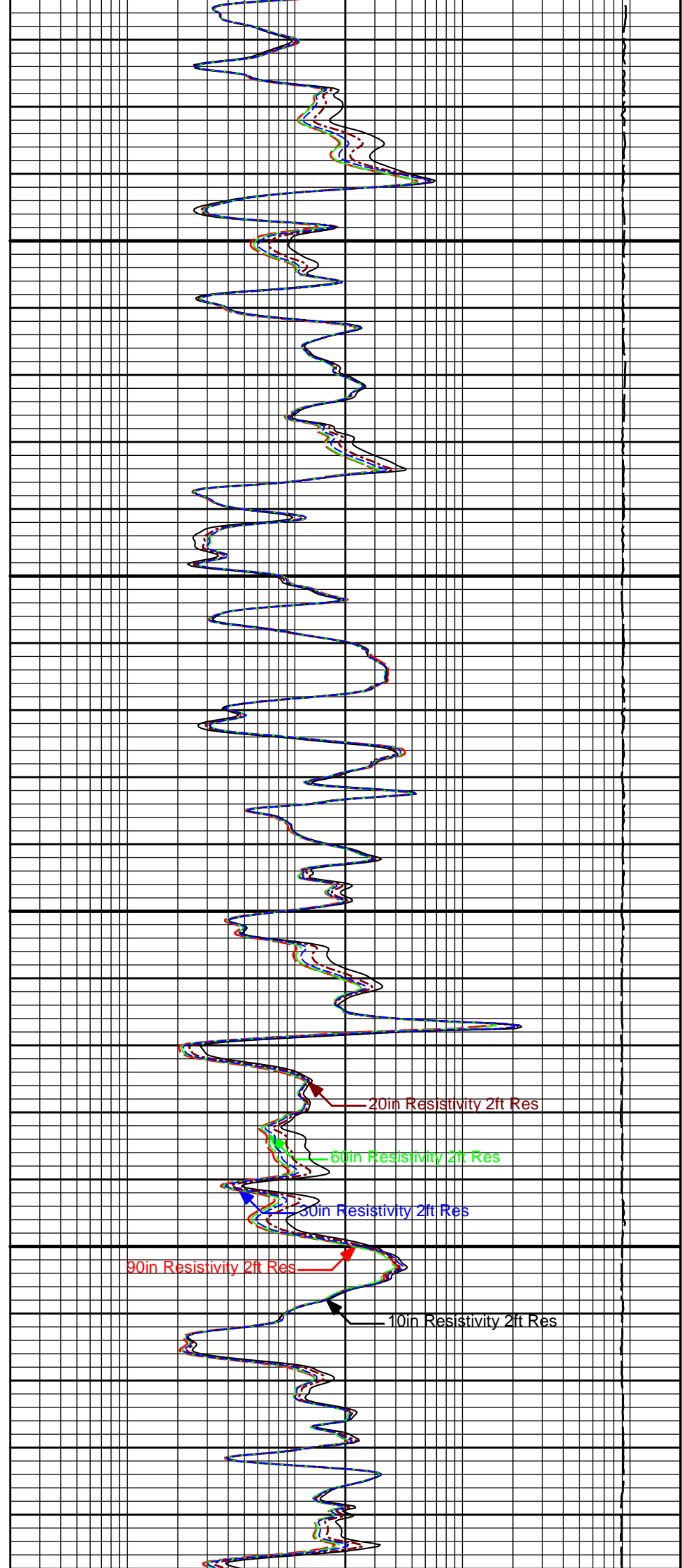
90in Resistivity 2ft Res

10in Resistivity 2ft Res



3500

3600



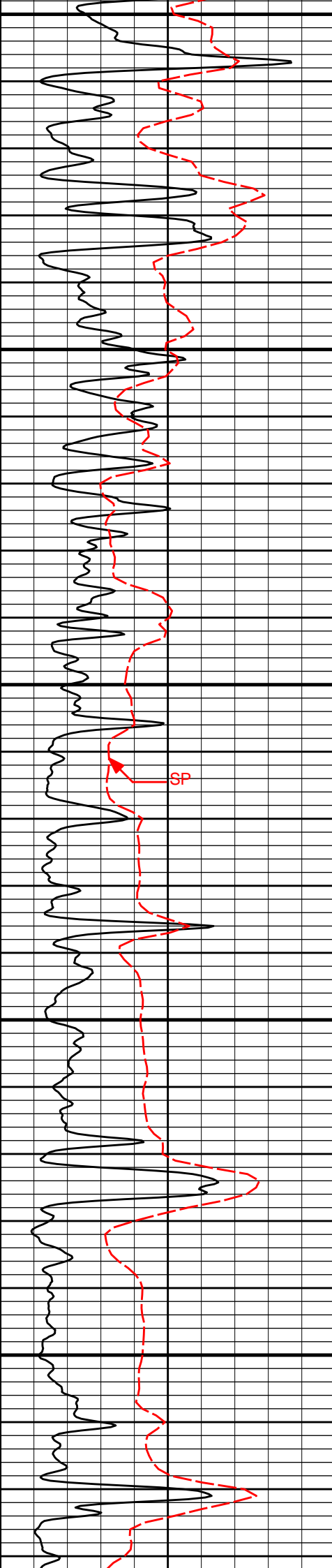
20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

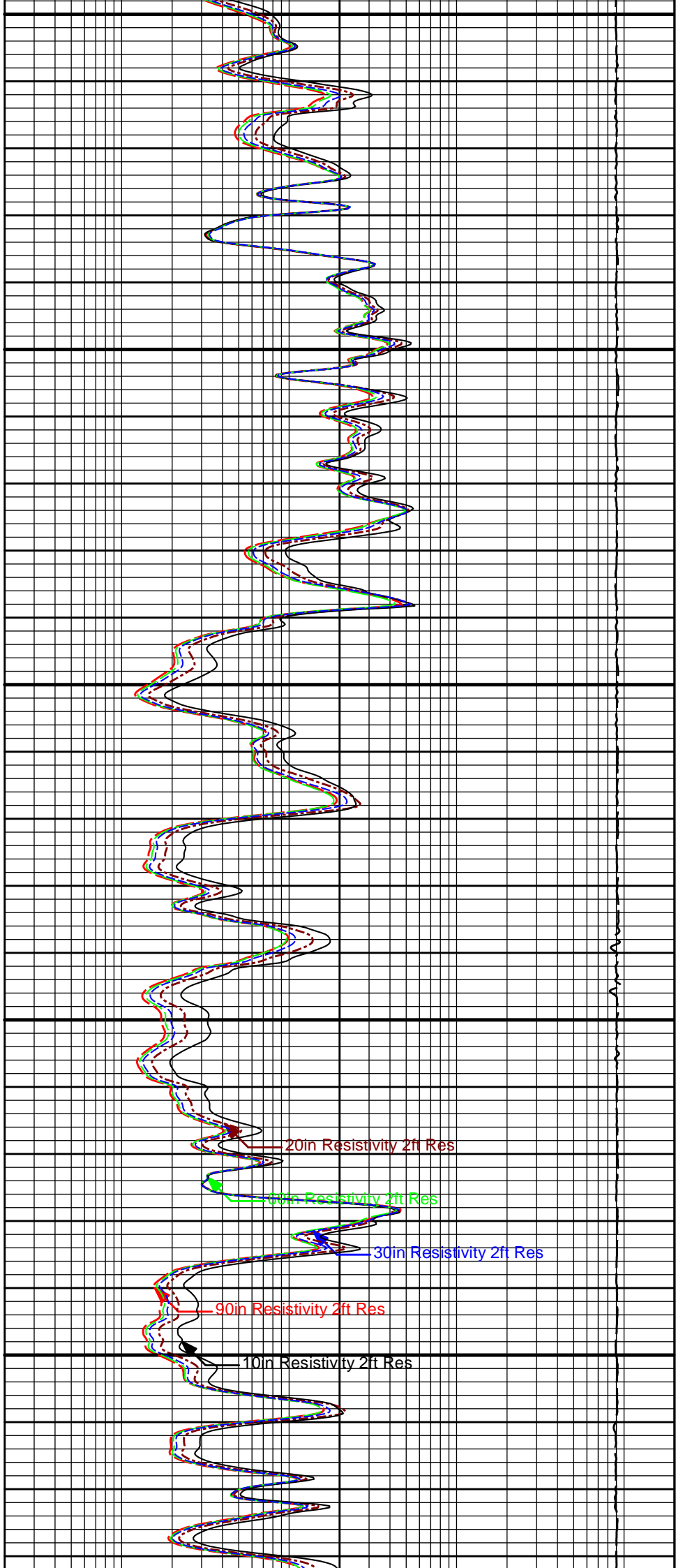
90in Resistivity 2ft Res

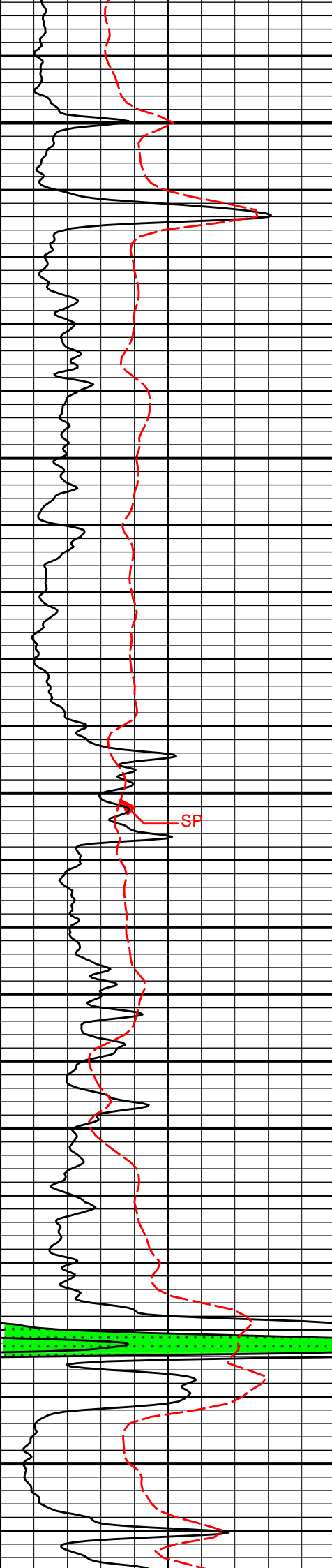
10in Resistivity 2ft Res



3700

3800

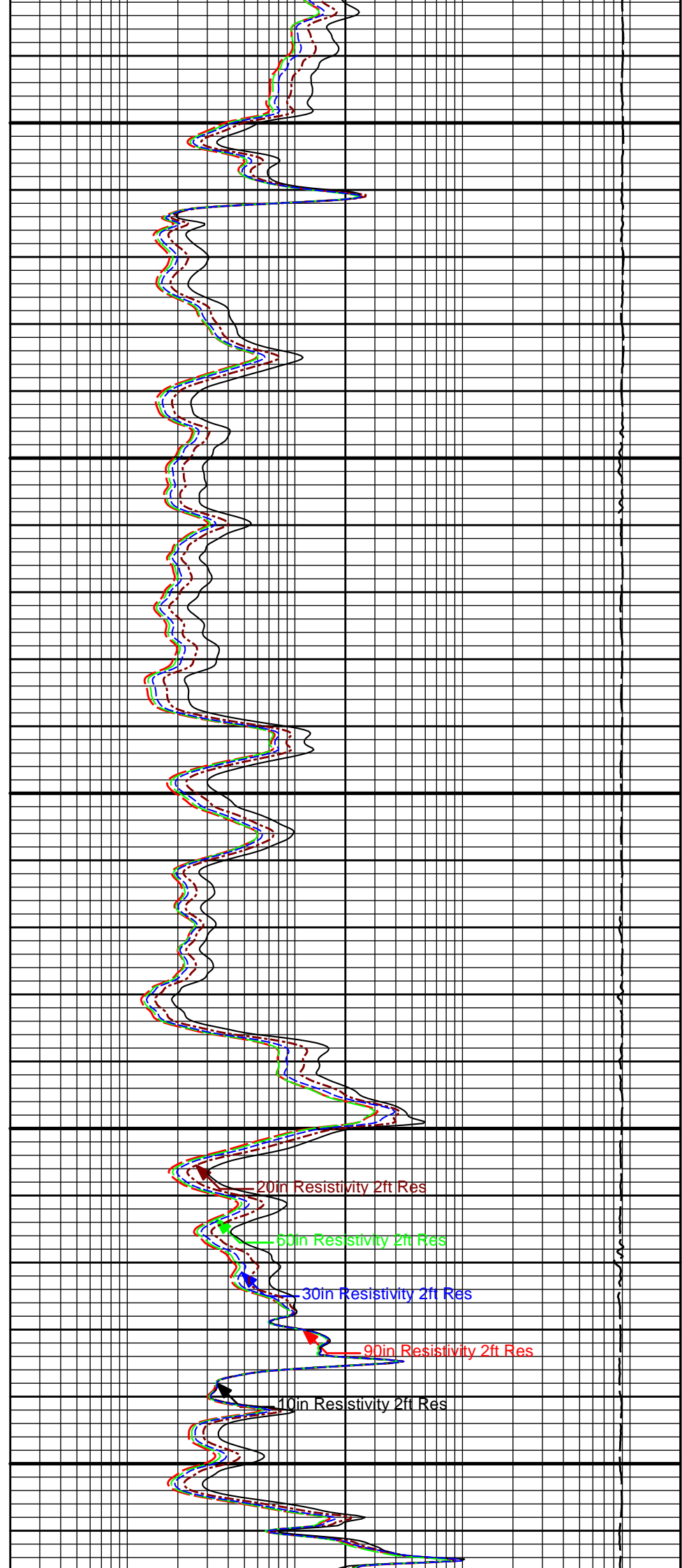




3900

4000

4100



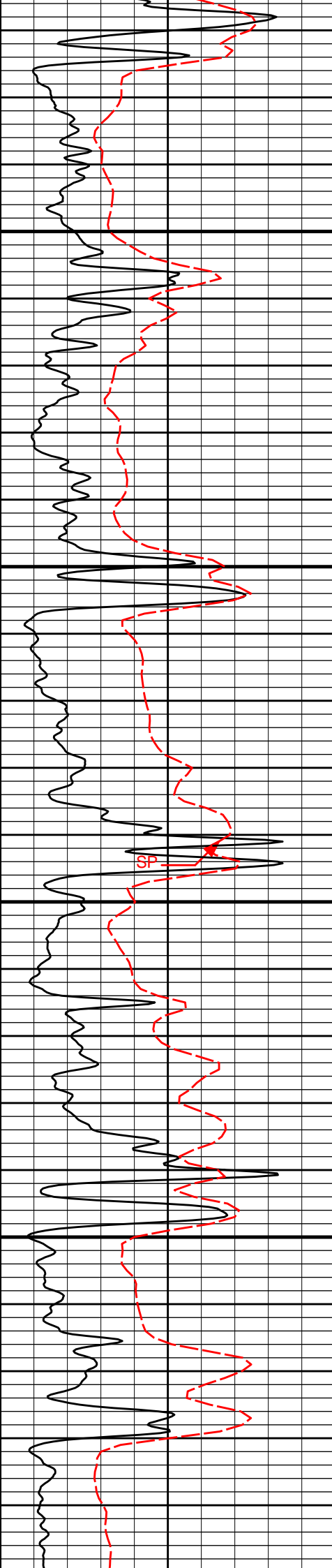
20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

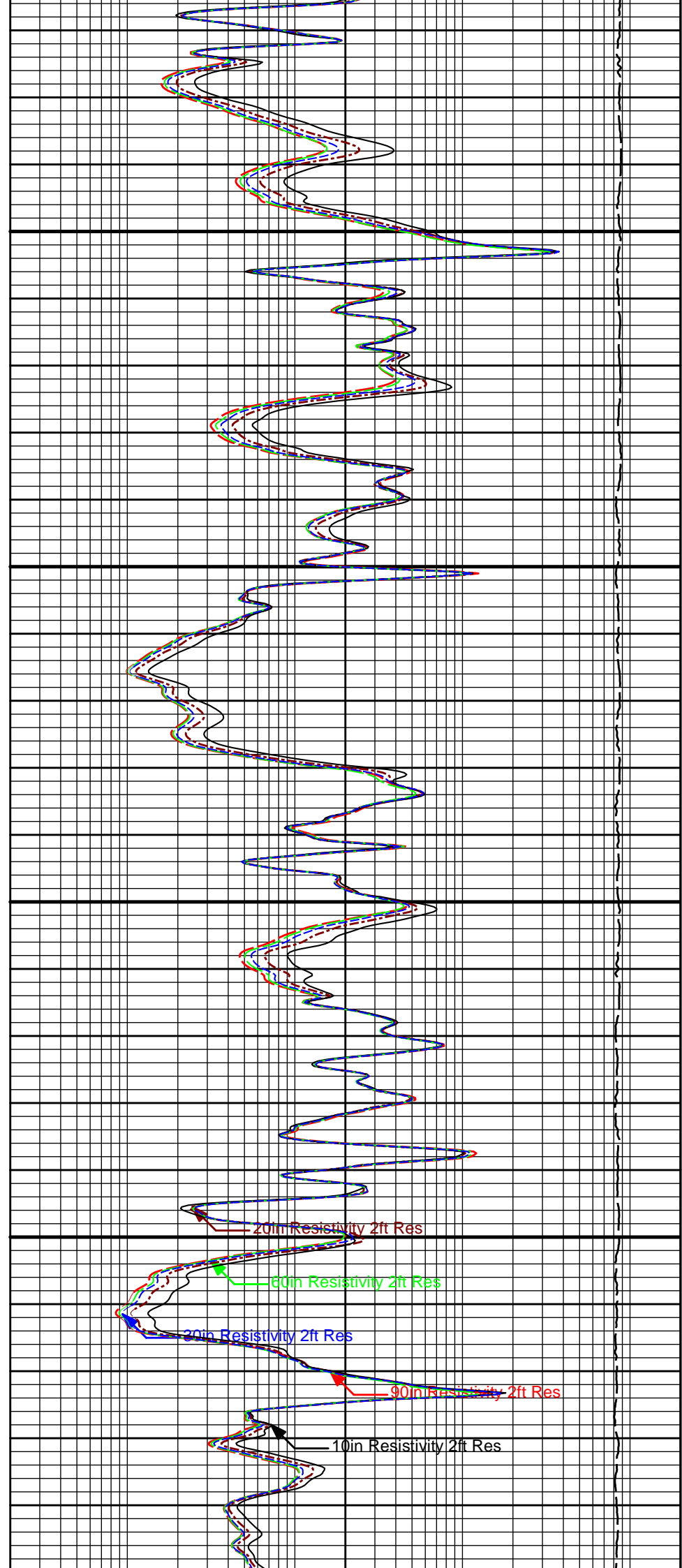
90in Resistivity 2ft Res

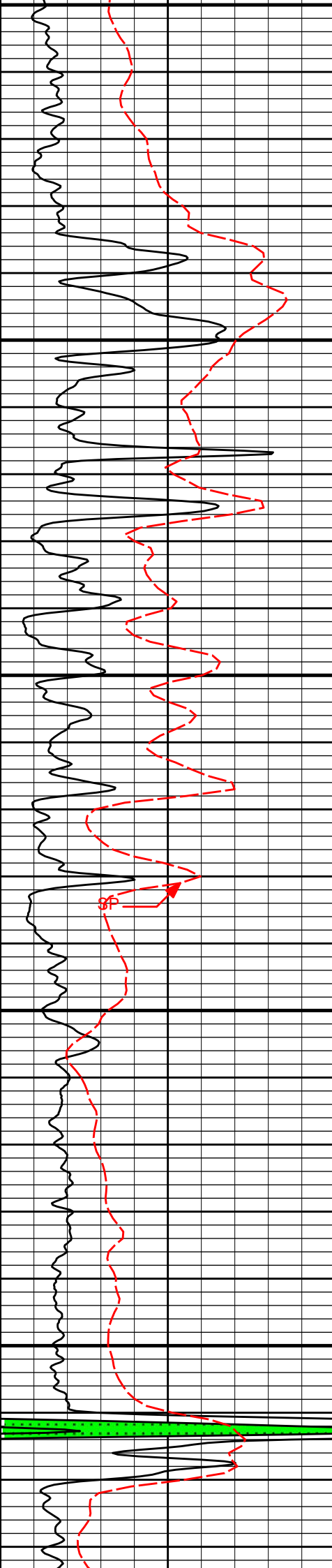
10in Resistivity 2ft Res



4200

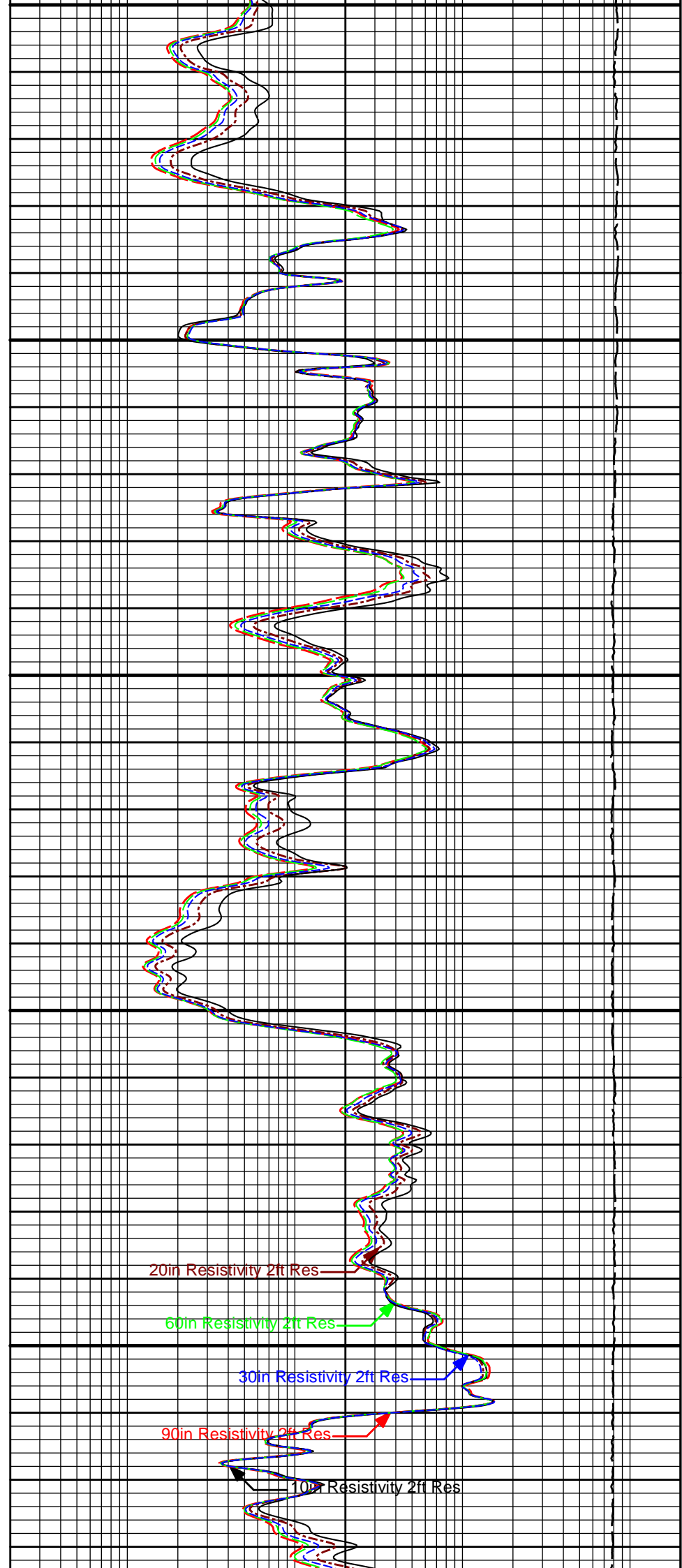
4300





4400

4500



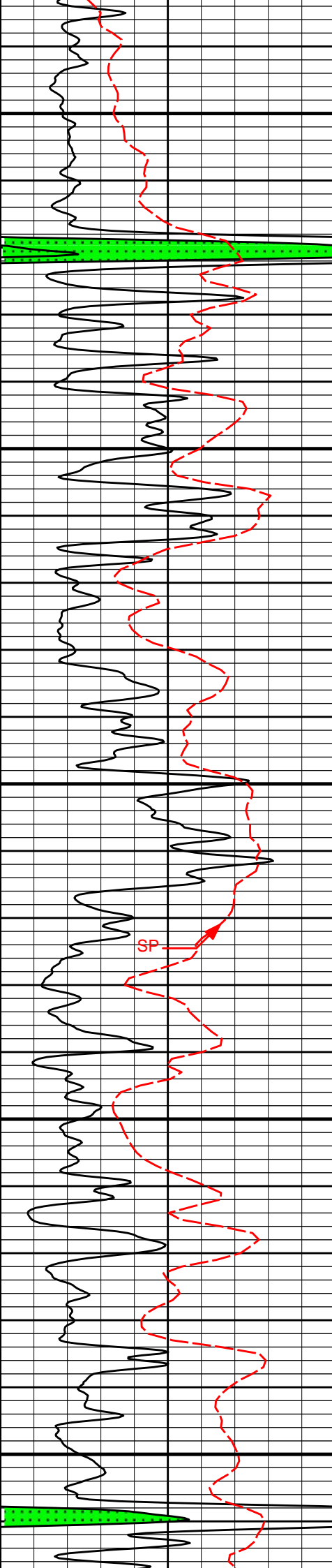
20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

90in Resistivity 2ft Res

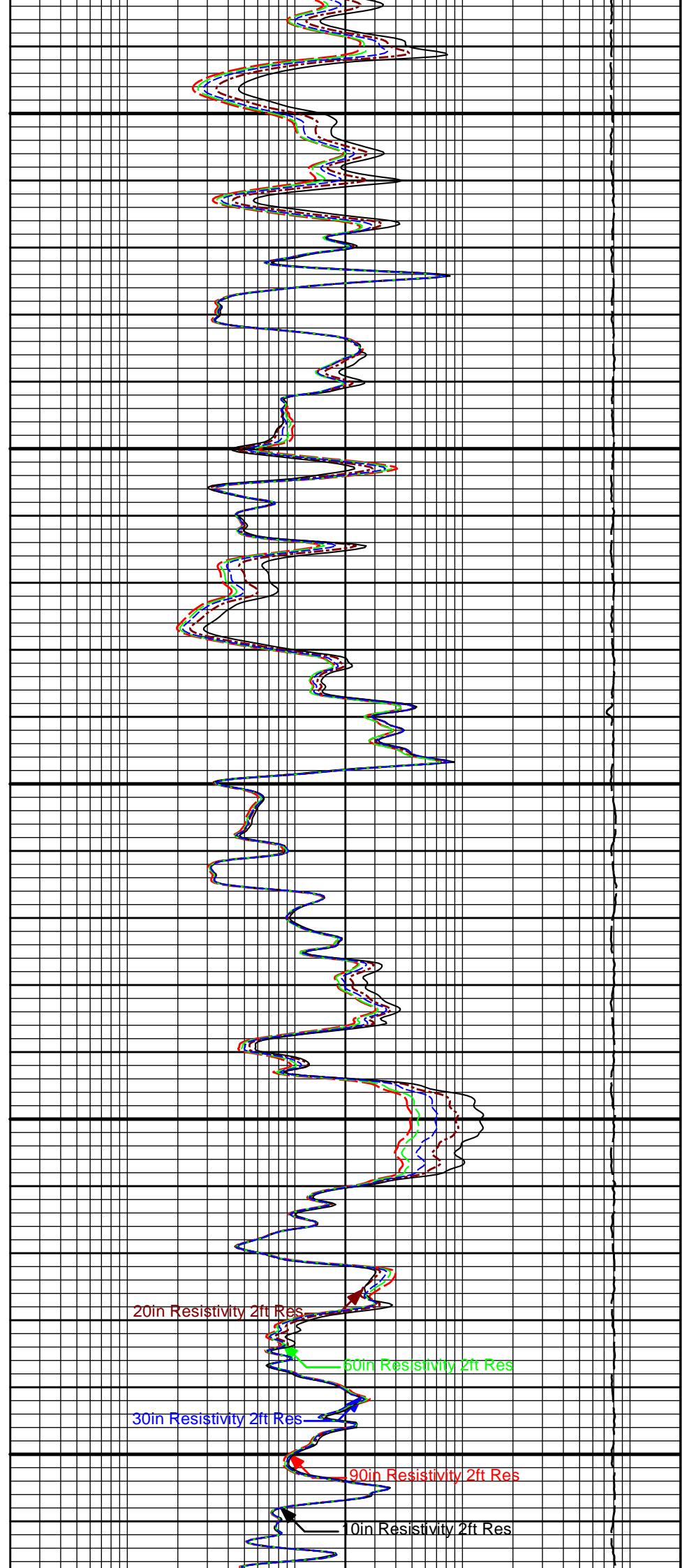
10in Resistivity 2ft Res



4600

4700

4800



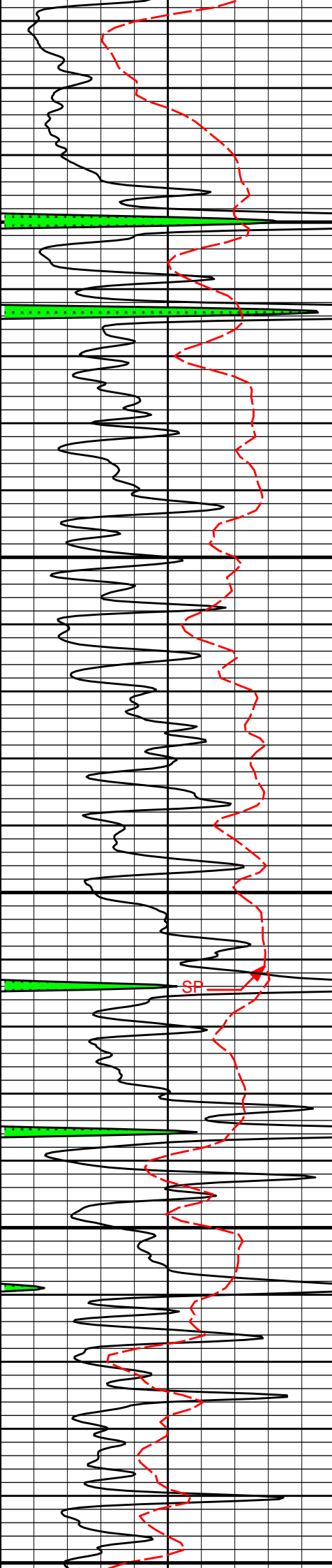
20in Resistivity 2ft Res

50in Resistivity 2ft Res

30in Resistivity 2ft Res

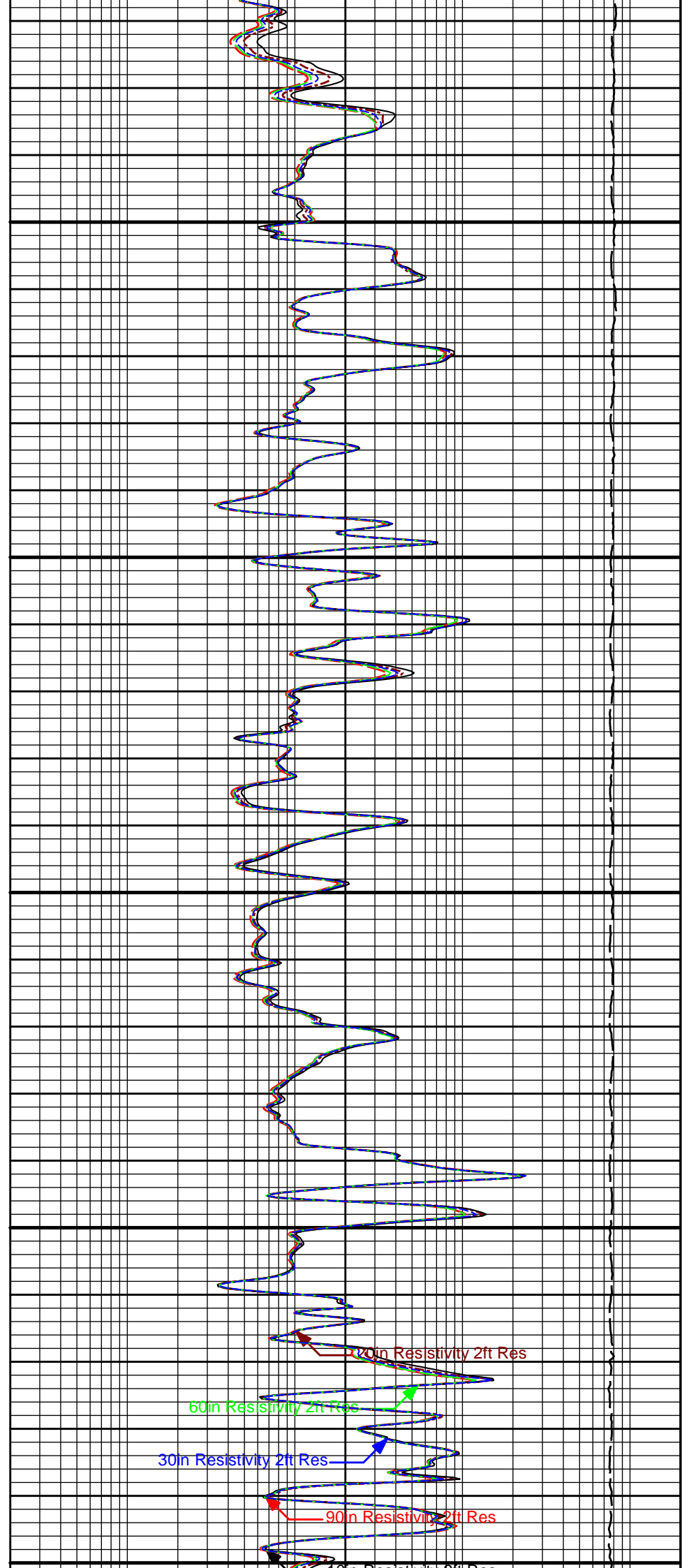
90in Resistivity 2ft Res

10in Resistivity 2ft Res



4900

5000

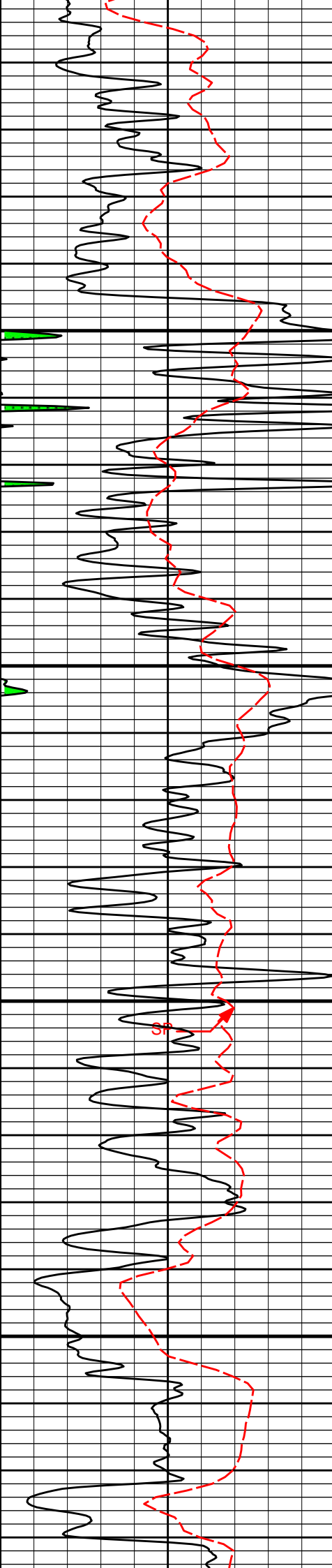


20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

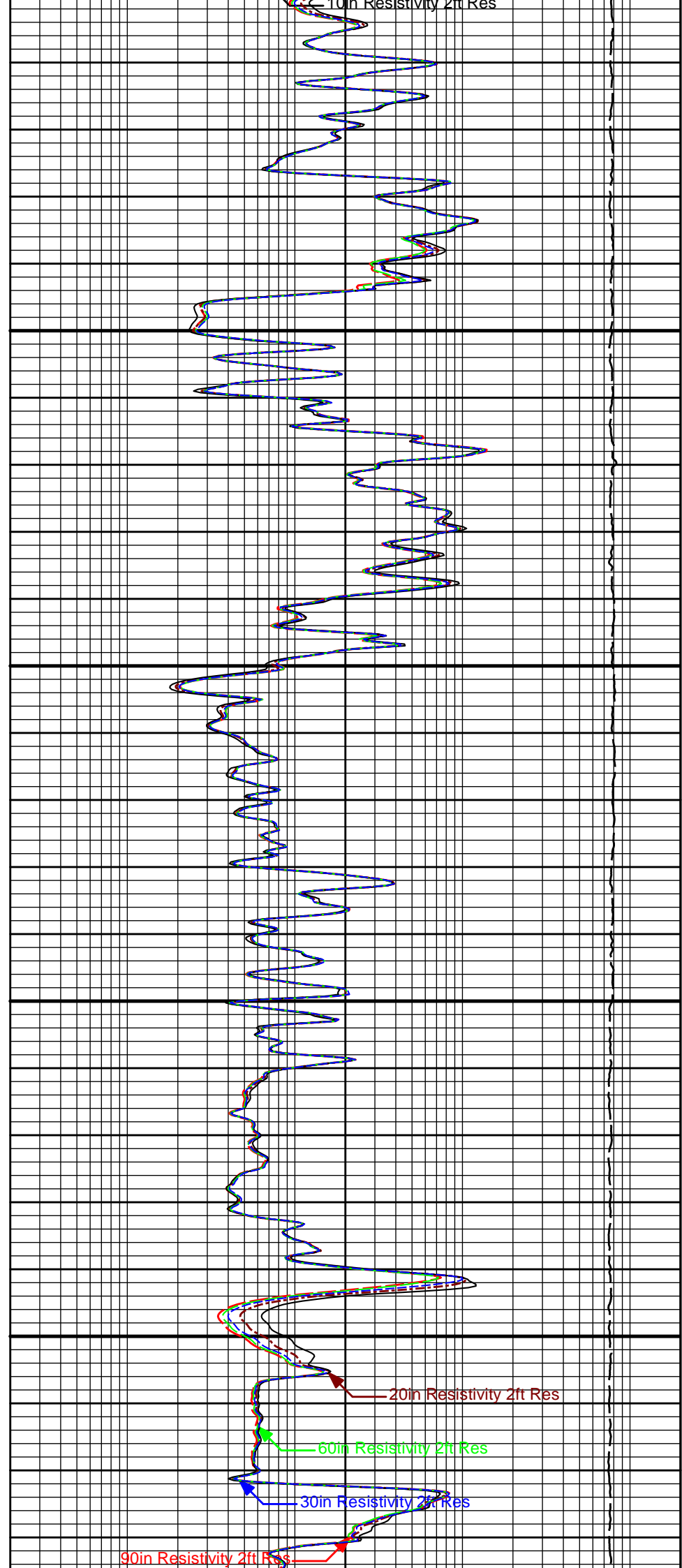
90in Resistivity 2ft Res



5100

5200

SP



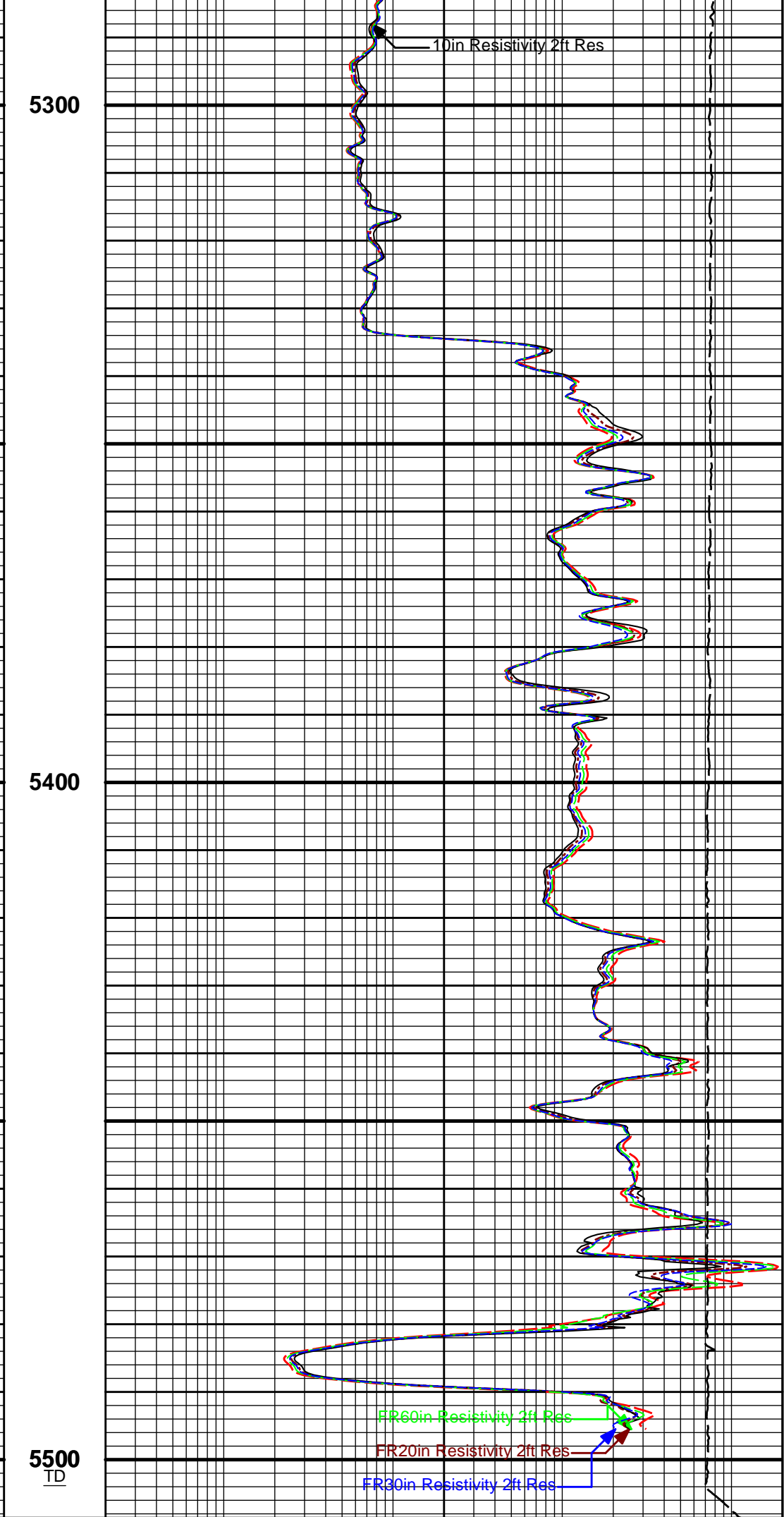
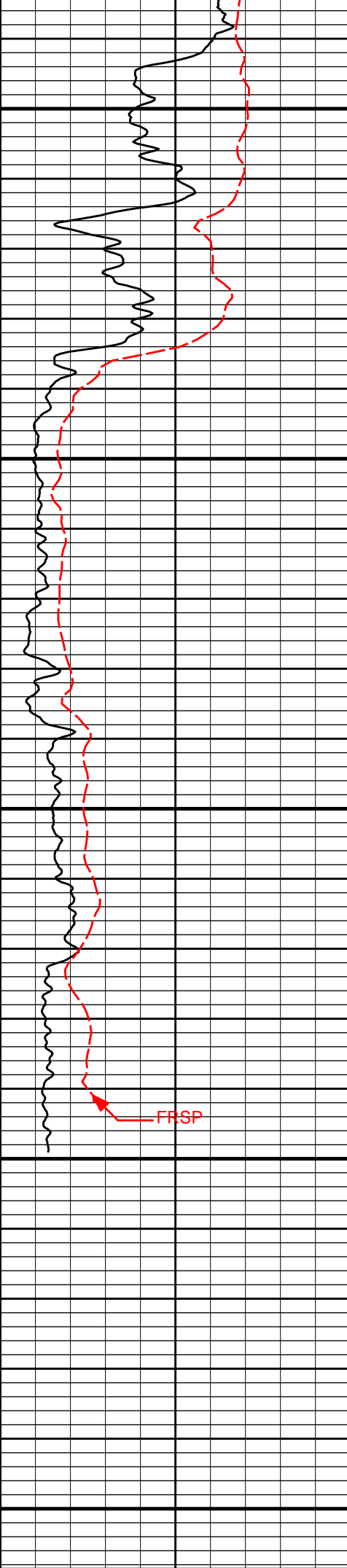
10in Resistivity 2ft Res

20in Resistivity 2ft Res

60in Resistivity 2ft Res

30in Resistivity 2ft Res

90in Resistivity 2ft Res



0 Gamma API 150

15K Tension 0

 pounds

<div style="border: 1px solid black; padding: 5px; text-align: center;"> SP -]20[+ </div>	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: 17-Aug-19 12:53:09
 Plot Range: 1750 ft to 5508.58 ft
 Data: MERIT_EMMA_WARD\Well Based\DAQ-0001-003\
 Plot File: \\-LOCAL-MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\ACRT-5\ACRT_5inch_main

5 INCH MAIN LOG

5 INCH MAIN LOG

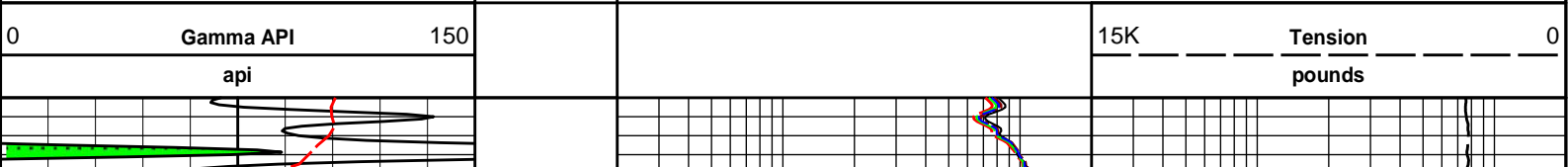
HALLIBURTON

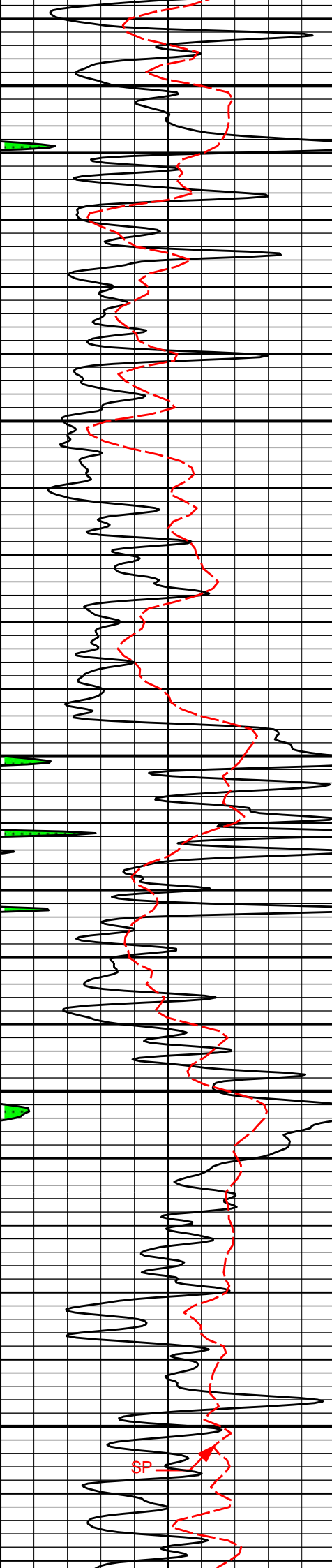
Plot Time: 17-Aug-19 12:53:10
 Plot Range: 4980 ft to 5510.42 ft
 Data: MERIT_EMMA_WARD\Well Based\DAQ-0001-002\
 Plot File: \\-LOCAL-MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\ACRT-5\ACRT_5inch_main

REPEAT SECTION

REPEAT SECTION

<div style="border: 1px solid black; padding: 5px; text-align: center;"> SP -]20[+ </div>	0.2	10in Resistivity 2ft Res	2K
	ohmm		
	0.2	20in Resistivity 2ft Res	2000
	ohmm		
	0.2	30in Resistivity 2ft Res	2000
ohm-metre			
0.2	60in Resistivity 2ft Res	2000	
ohmm			
0.2	90in Resistivity 2ft Res	2K	
ohmm			

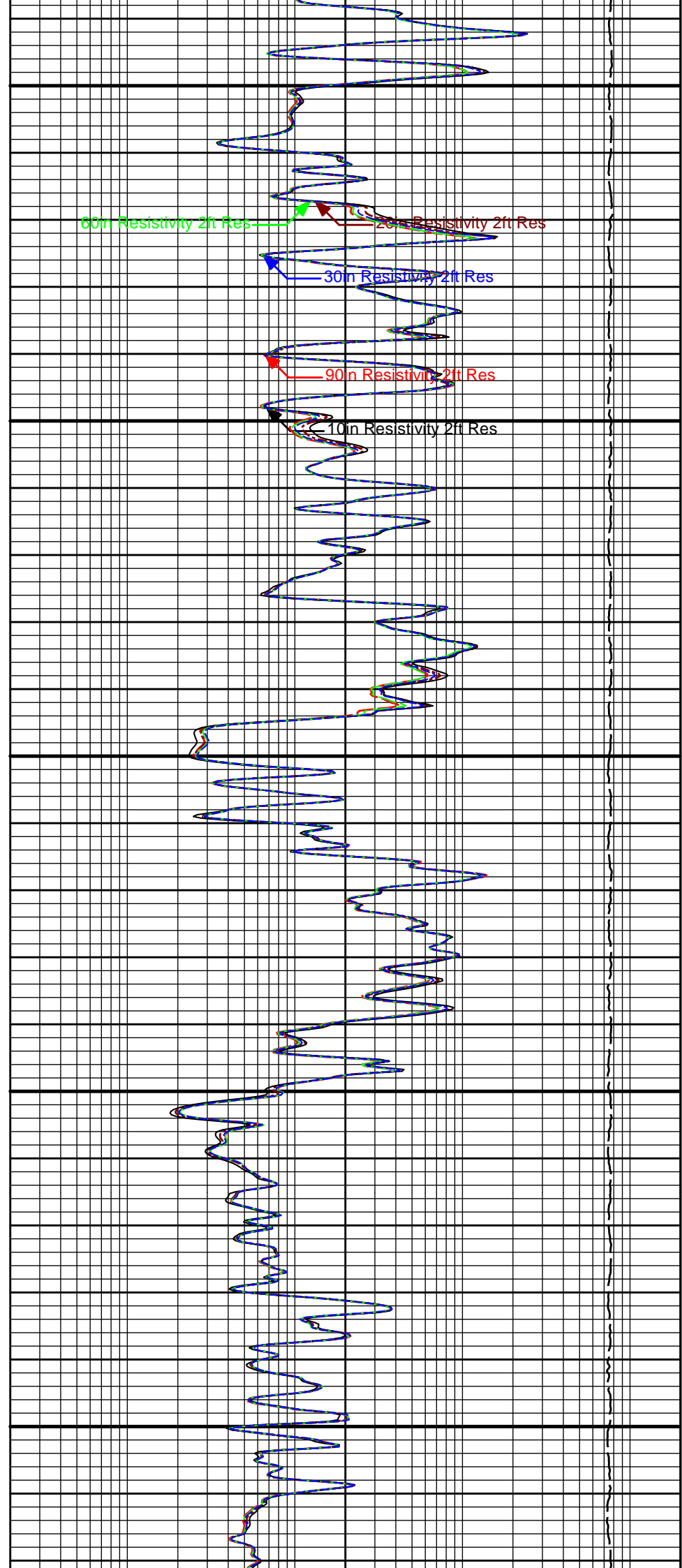




5000

5100

5200

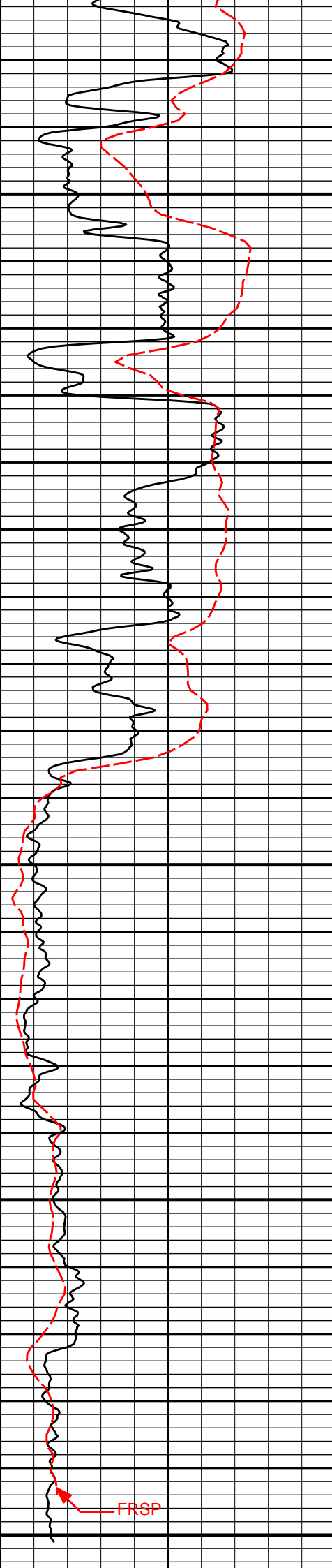


60m Resistivity 2ft Res

30m Resistivity 2ft Res

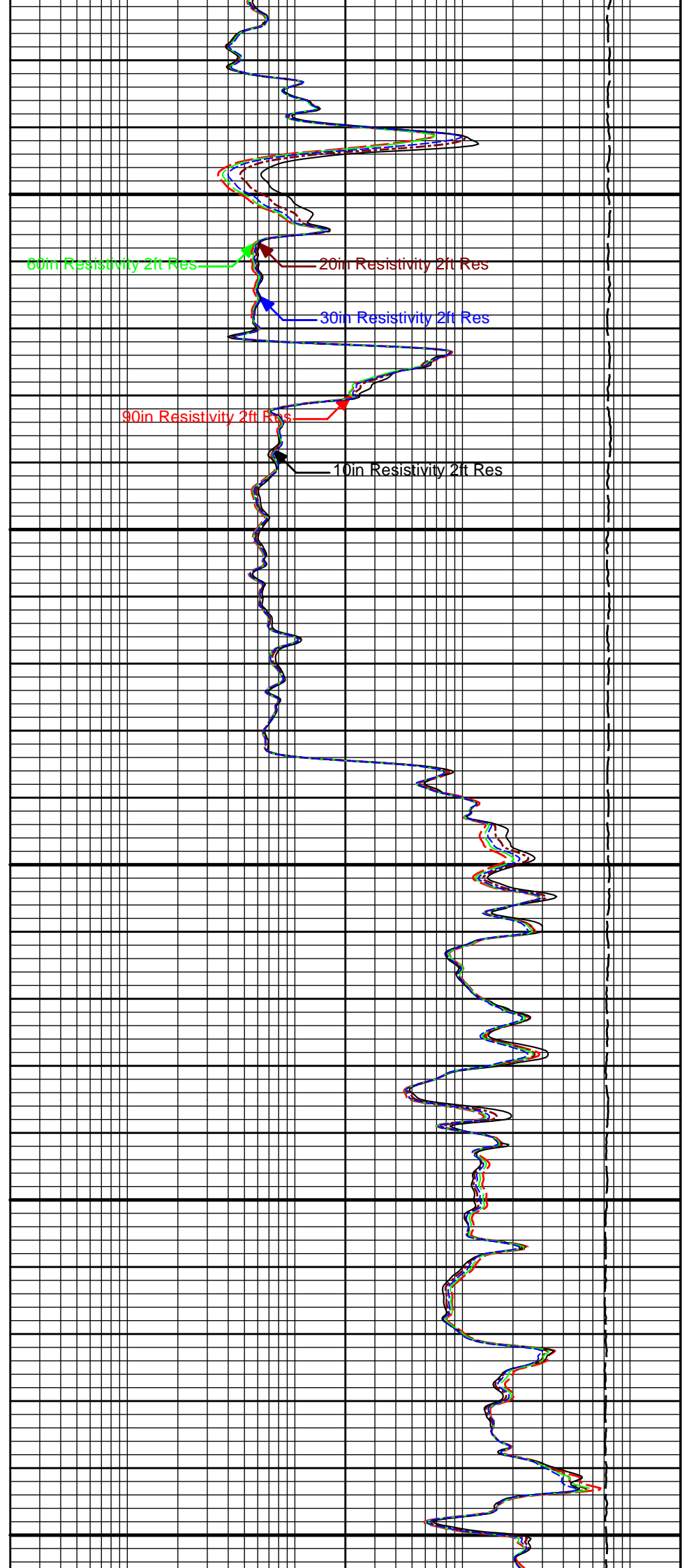
90m Resistivity 2ft Res

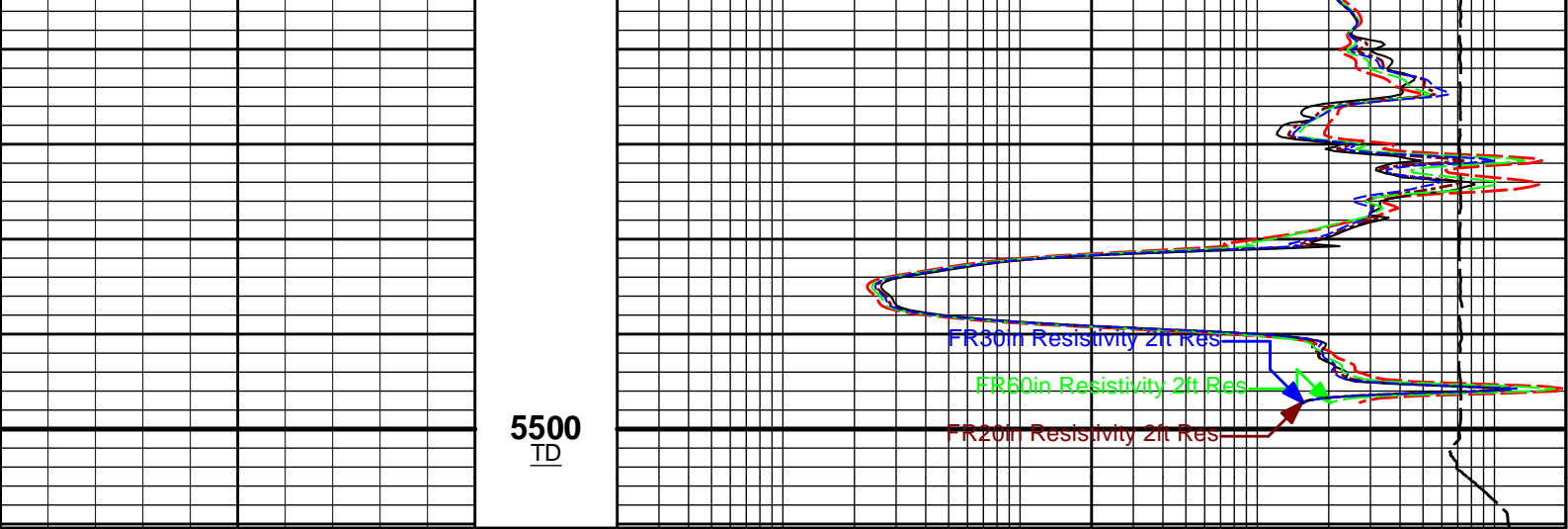
10m Resistivity 2ft Res



5300

5400





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: 17-Aug-19 12:53:11
 Plot Range: 4980 ft to 5510.42 ft
 Data: MERIT_EMMA_WARD\Well Based\DAQ-0001-002\
 Plot File: \\-LOCAL-MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\ACRT-5\ACRT_5inch_main

REPEAT SECTION

REPEAT SECTION

HALLIBURTON

CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name:	Depth Panel - 00000032	Reference Calibration Date:	28-Jul-19 00:13:55
Engineer:	WOLTEMATH	Calibration Date:	11-Aug-19 11:46:33
Software Version:	WL INSITE R6.2.1 (Build 2)	Calibration Version:	1

SURFACE TENSION LOAD CELL				
Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10092.65	101.47	0.00	lbs
High	17292.40	7827.14	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

DOWNHOLE LOGGING TOOL SHOP CALIBRATION

Tool Name: RWCH - 11830866

Reference Calibration Date: 13-Aug-19 15:10:06

Engineer: WHITLOCK

Calibration Date: 16-Aug-19 21:04:45

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	-580.34	-18.90	0.00	lbs
High	4275.88	612.00	1220.00	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11021139

Reference Calibration Date: 14-May-19 09:57:38

Engineer: WHITLOCK

Calibration Date: 29-Jun-19 15:22:45

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

Calibrator Source S/N: TB-79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units
Background	21.7	21.5	api
Background + Calibrator	249.2	247.4	api
Calibrator	227.5	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11021139

Reference Calibration Date: 29-Jun-19 15:22:45

Engineer: WHITLOCK

Calibration Date: 03-Aug-19 10:00:11

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

Calibrator Source S/N: TB-79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	21.5	22.6	api
Background + Calibrator	247.4	248.8	api
Calibrator	225.9	226.2	api

Shop	Field	Difference	Tolerance
225.9	226.2	-0.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11660709

Reference Calibration Date: 14-Feb-19 11:05:14

Engineer: WHITLOCK

Calibration Date: 14-May-19 11:28:42

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN-436

Tank Serial Number: EL RENO HWT

Reference value assigned to Tank: 56.100

Snow Block S/N: 12156883

Calibration Tank Water Temperature: 74 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.01152	1.00941	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):	0.2364	0.2358	0.0007	+/- 0.0020

Calibrated Ratio: 10.5816 10.5596 0.022 +/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0724	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 - 11660709 **Reference Calibration Date:** 14-May-19 11:28:42
Engineer: WHITLOCK **Calibration Date:** 03-Aug-19 10:16:16
Software Version: WL INSITE R6.2.1 (Build 2) **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):	0.0724	0.0623	-0.0102	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 12153526 **Reference Calibration Date:** 01-Jan-70 00:00:00
Engineer: WOLTEMATH **Calibration Date:** 08-Jul-19 10:59:56
Software Version: WL INSITE R6.2.1 (Build 2) **Calibration Version:** 1
Host Tool Name: DSNT - 11660709

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3224.77	-3224.77	-7000.00 - -1000.00
Pad Gain	0.0003783	0.0003783	0.0002000 - 0.0006000
Arm Offset	-2193.01	-2193.01	-5000.00 - 3000.00
Arm Gain	0.0005237	0.0005237	0.000300 - 0.000700
Arm Power	-0.000005118	-0.000005118	-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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 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

Ring-Measurement Check:

Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:

Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 12153526

Reference Calibration Date: 08-Jul-19 10:59:56

Engineer: WOLTEMATH

Calibration Date: 08-Jul-19 11:01:50

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.76	0.01	+/- 0.10
Ring Diameter	8.25	8.25	0.00	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:

Passed

Diameter Check:

Passed

BSAT FIELD CASING CHECK

Tool Name: BSAT - 10939049

Calibration Date: 30-Mar-17 10:01:32

Engineer: HARRIS

Software Version: WL INSITE R5.0.5 (Build 8)

Calibration Version: 1

Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units
Delta-T Compensated	147.01	57.00	56.56	0.4400	1.00	uspf

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 11038385

Reference Calibration Date: 30-May-19 10:30:10

Engineer: WHITLOCK

Calibration Date: 30-May-19 16:04:26

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

Host Tool Name: ACRt Instrument - 11055059

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0436	1.05	0.95	1.0233	1.05	0.95	1.0105	1.05
A2 (50")	0.95	1.0425	1.05	0.95	1.0248	1.05	0.95	1.0169	1.05
A3 (29")	0.95	1.0370	1.05	0.95	1.0178	1.05	0.95	1.0085	1.05
A4 (17")	0.95	1.0325	1.05	0.95	1.0108	1.05	0.95	1.0026	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0032	1.05	0.95	0.9929	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9937	1.05	0.95	0.9859	1.05

SONDE OFFSET

Subarray	R12KHz			R36KHz			R72KHz		
	(mmho/m)			(mmho/m)			(mmho/m)		
A1 (80")	1.105			-4.185			-6.175		
A2 (50")	-2.031			-4.364			-5.644		
A3 (29")	-15.630			-4.663			-3.991		
A4 (17")	-113.327			-34.718			-27.228		
A5 (10")	N/A			-86.739			-42.245		
A6 (6")	N/A			334.526			172.566		

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.93	1.3
36K	1.0	1.39	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK PASS

SONDE OFFSET CHK PASS

TOOL OK TO LOG

QUALITY CHECK SHOP CALIBRATION

Tool Name: ACRt Sonde - 11038385

Reference Calibration Date: 27-Mar-19 10:28:27

Engineer: WHITLOCK

Calibration Date: 30-May-19 10:32:26

Software Version: WL INSITE R6.2.1 (Build 2)

Calibration Version: 1

Host Tool Name: ACRt Instrument - 11055059

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	-0.007	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.006	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.004	> -0.500	Pass
A4 (17")	-0.003	> -0.500	Pass	-0.008	> -0.500	Pass	-0.028	> -0.500	Pass
A5 (10")	-0.012	> -0.500	Pass	-0.020	> -0.500	Pass	-0.043	> -0.500	Pass
A6 (6")	0.015	< 0.500	Pass	0.074	< 0.500	Pass	0.160	< 0.500	Pass

GAIN TOLERANCE**R12KHz**

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-222464160.000	-219334160.000	3130000.000	10966708.000	Pass
A2 (50")	-218296048.000	-217147632.000	1148416.000	10857381.600	Pass
A3 (29")	-215615984.000	-213416928.000	2199056.000	10670846.400	Pass
A4 (17")	-212439408.000	-210205136.000	2234272.000	10510256.800	Pass
A5 (10")	-213281584.000	-210744480.000	2537104.000	10537224.000	Pass
A6 (6")	-213757744.000	-212744384.000	1013360.000	10637219.200	Pass

R36KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	58226652.000	59308716.000	1082064.000	2965435.800	Pass
A2 (50")	59078976.000	60516680.000	1437704.000	3025834.000	Pass
A3 (29")	50762576.000	52467084.000	1704508.000	2623354.200	Pass
A4 (17")	47774380.000	48963324.000	1188944.000	2448166.200	Pass
A5 (10")	49758800.000	51107628.000	1348828.000	2555381.400	Pass
A6 (6")	48666176.000	49936832.000	1270656.000	2496841.600	Pass

R72KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-92092456.000	-91475104.000	617352.000	4573755.200	Pass
A2 (50")	-88448376.000	-88531624.000	83248.000	4426581.200	Pass
A3 (29")	-88454672.000	-88284496.000	170176.000	4414224.800	Pass
A4 (17")	-83513648.000	-83029816.000	483832.000	4151490.800	Pass
A5 (10")	-82220840.000	-81717560.000	503280.000	4085878.000	Pass
A6 (6")	-83857920.000	-83900568.000	42648.000	4195028.400	Pass

PASS/FAIL SUMMARY	
Std Deviation Verification	Pass
Average Verification	Pass
Gain Tolerance Verification	Pass

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - 12153526	Reference Calibration Date:	29-Jul-19 12:21:32
Engineer:	WHITLOCK	Calibration Date:	03-Aug-19 10:05:03
Software Version:	WL INSITE R6.2.1 (Build 2)	Calibration Version:	1
Host Tool Name:	DSNT - 11660709		

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.15	-0.15	-0.01	-0.01	ohmm
Calibration Point #1	0.00	0.00	-0.00	0.00	ohmm
Calibration Point #2	20.01	20.00	19.97	20.00	ohmm
Internal Reference	19.86	19.86	19.97	20.00	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.05	0.24	V
Calibration Point #1	39.39	2.10	V
Calibration Point #2	5334.68	6957.33	V
Internal Reference	5296.44	6958.07	V

MICRO LOG FIELD CHECK			
Tool Name:	Microlog Pad - 12153526	Reference Calibration Date:	03-Aug-19 10:05:03
Engineer:	WHITLOCK	Calibration Date:	03-Aug-19 10:05:58
Software Version:	WL INSITE R6.2.1 (Build 2)	Calibration Version:	1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.15	-0.16	-0.01	-0.01	ohmm
Internal Reference	19.86	19.86	20.00	20.00	ohmm

Summary				
Signal	Shop	Field	Difference	Tolerance
Microlog Normal	19.86	19.86	0.00	+/- 0.80
Microlog Lateral	20.00	20.00	0.00	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 11284007	Reference Calibration Date:	14-May-19 10:35:42
Engineer:	WHITLOCK	Calibration Date:	14-May-19 11:01:04
Software Version:	WL INSITE R6.2.1 (Build 2)	Calibration Version:	1

Logging Source S/N: 5475GW			
Aluminum Block S/N: EL RENO AL BLK	Density: 2.581g/cc		Pe: 3.170
Magnesium Block S/N: EL RENO MG BLK	Density: 1.687g/cc		Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0672	1.0696	0.90 - 1.10
Near Dens Gain	1.0399	1.0253	0.90 - 1.10
Near Peak Gain	1.0698	1.0607	0.90 - 1.10
Near Lith Gain	1.0707	1.0600	0.90 - 1.10
Far Bar Gain	1.0119	1.0132	0.90 - 1.10
Far Dens Gain	1.0014	1.0004	0.90 - 1.10
Far Peak Gain	0.9998	0.9988	0.90 - 1.10
Far Lith Gain	0.9842	0.9832	0.90 - 1.10
Near Bar Offset	-0.4646	-0.4868	NONE
Near Dens Offset	-0.1638	-0.0376	NONE
Near Peak Offset	-0.4118	-0.3374	NONE
Near Lith Offset	-0.4691	-0.3841	NONE
Far Bar Offset	-0.0627	-0.0742	NONE
Far Dens Offset	0.0569	0.0650	NONE
Far Peak Offset	0.0511	0.0583	NONE
Far Lith Offset	0.1514	0.1583	NONE
Near Bar Background	993.88	993.91	700 - 1450
Near Dens Background	329.23	327.28	230 - 480
Near Peak Background	147.25	146.97	100 - 210
Near Lith Background	178.05	176.81	125 - 260
Far Bar Background	582.67	585.21	450 - 900
Far Dens Background	227.13	227.13	175 - 345
Far Peak Background	91.02	90.90	70 - 140
Far Lith Background	94.76	94.27	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.688	1.687	-0.001	+/- 0.015
Pe	2.523	2.556	0.033	+/- 0.150
ALUMINUM				
Density (g/cc)	2.580	2.581	0.001	+/- 0.01500
Pe	3.116	3.129	0.013	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0004	+/- 0.0110	-0.0020	+/- 0.0140
Magnesium Block	0.0005	+/- 0.0110	0.0007	+/- 0.0140
Aluminum Block	0.0003	+/- 0.0110	0.0001	+/- 0.0140
Resolution	8.86	6.00 - 11.50	9.16	6.00 - 11.50
Internal Verifier(B+D+P+L)	1645	1200 - 2700	998	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 - 11284007** Reference Calibration Date: **14-May-19 11:01:04**
 Engineer: **WHITLOCK** Calibration Date: **03-Aug-19 10:00:22**
 Software Version: **WL INSITE R6.2.1 (Build 2)** Calibration Version: **1**

Pad Temperature: 85.8 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1644.977	1639.111	-5.866	16.295
Far (B+D+P+L) cps	997.505	993.961	-3.544	16.911
Near Resolution	8.86	8.87	0.010	0.50
Far Resolution	9.16	9.12	-0.040	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	1220.00	-----	-----	0.00	-----	lbs
GTET-11021139						
Gamma Ray Calibrator	225.9	226.2	-----	-0.3	+/- 9.00	api
DSNT-11660709						
Snow-Block Porosity	0.0724	0.0623	-----	0.0101	+/- 0.0150	decP
SDLT-12153526						
Pad Extension	3.75	3.76	-----	-0.01	+/-0.10	in
Ring Diameter	8.25	8.25	-----	0.00	+/-0.15	in
ACRt Sonde-11038385						
Mud Cell	1.00	-----	-----	0	-----	ohm-m
Microlog Pad-12153526						
MicroLog Normal	19.86	19.86	-----	0.00	+/-0.80	ohmm
MicroLog Lateral	20.00	20.00	-----	0.00	+/-0.80	ohmm
SDLT Pad-11284007						
Near(B+D+P+L)	1644.977	1639.111	-----	5.866	+/-16.295	cps
Far(B+D+P+L)	997.505	993.961	-----	3.544	+/-16.911	cps

Data: MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\IDLE

Date: 17-Aug-19 08:46:54



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	2.000	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	5529.00	ft
SHARED	BHT	Bottom Hole Temperature	135.0	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	

BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Pore Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	Limestone 47.6	
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
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

Data: MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\IDLE

Date: 17-Aug-19 08:48:28

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
		Ø 2.310 in →		← Fishing Neck @ 73.73 ft		74.61 ft
RWCH-11830866 135.00 lbs		Ø 3.625 in →		← Load Cell @ 70.93 ft ← BH Temperature @ 70.36 ft	6.25 ft	
	Weak Point Solid- 11111111 0.01 lbs	Ø 0.010 in* →				68.36 ft
SP Sub-10904995 60.00 lbs		Ø 3.625 in →		← SP @ 66.59 ft	3.74 ft	
				← Z-Accelerometer @ 64.17 ft		64.63 ft
GTET-11021139 165.00 lbs		Ø 3.625 in →		← GammaRay @ 58.56 ft	8.52 ft	
						56.11 ft
	DSN Decentralizer- 11055304 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →				
DSNT-11660709 174.00 lbs				← DSN Far @ 49.17 ft ← DSN Near @ 48.42 ft	9.69 ft	
						46.42 ft

SDLT-12153526
360.00 lbs

SDLT Pad-11284007
65.00 lbs
Microlog Pad-12153526
8.00 lbs

RAM-Cs137-54750000
1.00 lbs

Ø 4.500 in →
Ø 4.500 in* →
Ø 4.750 in* →
Ø 0.800 in* →

← Microlog @ 38.61 ft
← SDL Caliper @ 38.42 ft
← SDL @ 38.41 ft

10.81 ft
35.61 ft
46.42 ft

BSAT-10939049
300.00 lbs

Ø 3.625 in →

← Receiver Array @ 27.09 ft
← Sonic Receivers @ 27.09 ft

15.77 ft

ACRt Instrument-
11055059
50.00 lbs

Ø 3.625 in →

← Mud Resistivity @ 13.44 ft

19.83 ft
5.03 ft

ACRt Sonde-
11038385
200.00 lbs

Ø 3.625 in →

← ACRt @ 9.46 ft

14.80 ft
14.22 ft

Cabbage Head-
11111111
10.00 lbs

Ø 3.625 in →
Ø 6.000 in →

0.58 ft
0.58 ft
0.00 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	68.36	300.00
WPSS	Weak Point Solid	11111111	0.01	0.01	* 68.36	300.00
SP	SP Sub	10904995	60.00	3.74	64.63	300.00
GTET	Gamma Telemetry Tool	11021139	165.00	8.52	56.11	60.00
DSNT	Dual Spaced Neutron	11660709	174.00	9.69	46.42	60.00
DCNT	DSN Decentralizer	11055304	6.60	5.13	* 49.75	300.00
SDLT	Spectral Density Tool	12153526	360.00	10.81	35.61	60.00
SDLP	Density Insite Pad	11284007	65.00	2.55	* 37.82	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	54750000	1.00	0.80	* 38.05	300.00
MICP	Microlog Pad	12153526	8.00	1.00	* 38.11	60.00

MRC	Microlog Pad	12188828	0.00	1.00	00.11	00.00
BSAT	Borehole Sonic Array Tool	10939049	300.00	15.77	19.83	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11055059	50.00	5.03	14.80	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11038385	200.00	14.22	0.58	120.00
CBHD	Cabbage Head	11111111	10.00	0.58	0.00	300.00

Total			1,534.61	74.61		
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* Not included in Total Length and Length Accumulation.

Data: MERIT_EMMA_WARD\0001 GTET-DSN-SDL-BSAT-ACRT\IDLE

Date: 17-Aug-19 08:50:19