

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY
5" LOG

MERIT ENERGY COMPANY				COMPANY				MERIT ENERGY COMPANY			
EENU 103				WELL				EENU 103			
EUBANK				FIELD/BLOCK				EUBANK			
HASKELL				COUNTY				HASKELL			
KANSAS				COUNTY				HASKELL			
STATE				STATE				KANSAS			
COMPANY				API No.				15-081-22179-01-00			
WELL				Location				(SHL) NW NW SE NW 1335' FWL & 1574' FNL			
FIELD/BLOCK				Sect.				3			
COUNTY				Twp.				28S			
HASKELL				Rge.				34W			
STATE				Elev.				3079.0 ft			
KANSAS				D.F.				3089.0 ft			
Other Services:				G.L.				3079.0 ft			
ACRT				Elev.: K.B.				3091.0 ft			
SDL-DSN				D.F.				3089.0 ft			
MICLOG				G.L.				3079.0 ft			
BSAT											
GEM-CSNG											
Permanent Datum				GL							
Log measured from				KB							
Drilling measured from				KB							
Date				17-Jul-18							
Run No.				1							
Depth - Driller				5650.0 ft							
Depth - Logger				5650.0 ft							
Bottom - Logged Interval				5640							
Top - Logged Interval				1779							
Casing - Driller				8.625 in @ 1779.0 ft				@			
Casing - Logger				1779.0 ft							
Bit Size				7.875 in				@			
Type Fluid in Hole				Water Based Mud							
Density				9.20 g/cc				65.00 s/qt			
Viscosity				11.00 pH				6.4 cpm			
Fluid Loss				FLOWLINE							
Source of Sample				0.75 ohmm @ 88.00 degF				@			
Rm @ Meas. Temperature				0.58 ohmm @ 85.00 degF				@			
Rmf @ Meas. Temperature				0.91 ohmm @ 85.00 degF				@			
Rmc @ Meas. Temperature				MEAS							
Source Rmf				MEAS							
Rm @ BHT				0.44 ohmm @ 155.0 degF				@			
Time Since Circulation				06:00 hr							
Time on Bottom				17-Jul-18 12:57							
Max. Rec. Temperature				155.00 degF @ 5650.0 ft				@			
Equipment				12156883 EL RENO, OK							
Recorded By				WHITLOCK							
Witnessed By				MATTHEW GARVIN							

Service Ticket No.: 904998330

API No.: 15-081-22179-01-00

PGM Version: WL INSITE R5.6.3 (Build 4)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES			
Date	Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller							
Type Fluid in Hole							
Density	Viscosity						
Ph	Fluid Loss						
Source of Sample				RESISTIVITY EQUIPMENT DATA			
Rm @ Meas. Temp	@		@	Run No.	Tool Type & No.	Pad Type	Tool Pos.
Rmf @ Meas. Temp.	@		@				
Rmc @ Meas. Temp.	@		@				
Source Rmf	Rmc						
Rm @ BHT	@		@				
Rmf @ BHT	@		@				
Rmc @ BHT	@		@				
EQUIPMENT DATA							
GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.		Run No.		Run No.		Run No.	
Serial No.		Serial No.		Serial No.		Serial No.	
Model No.		Model No.		Model No.		Model No.	
Diameter		No. of Cent.		Diameter		Diameter	
Detector Model No.		Spacing		Log Type		Log Type	
Type				Source Type		Source Type	
Length		LSA [Y/N]		Serial No.		Serial No.	
Distance to Source		FWDA [Y/N]		Strength		Strength	
LOGGING DATA							
GENERAL		GAMMA		ACOUSTIC		DENSITY	
Run	Depth	Speed	Scale	Scale		Matrix	NEUTRON
No.	From	To	ft/min	L	R	L	R

DIRECTIONAL INFORMATION														
Maximum Deviation								@	KOP				@	
Remarks: 5 1/2" CASING USED FOR ANNULAR HOLE VOLUME														
CSNG ONLY DISPLAY THE REPEAT FILE, MAIN LOG, CSNG DATA BECAME INVALID														
THIS WAS OK BY CUSTOMER, AS CSNG DATA USE FOR GEM PROCESSING														
CREW: WHITLOCK, LANCASTER, THOMPSON														
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														

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Plot Time: 17-Jul-18 18:06:18

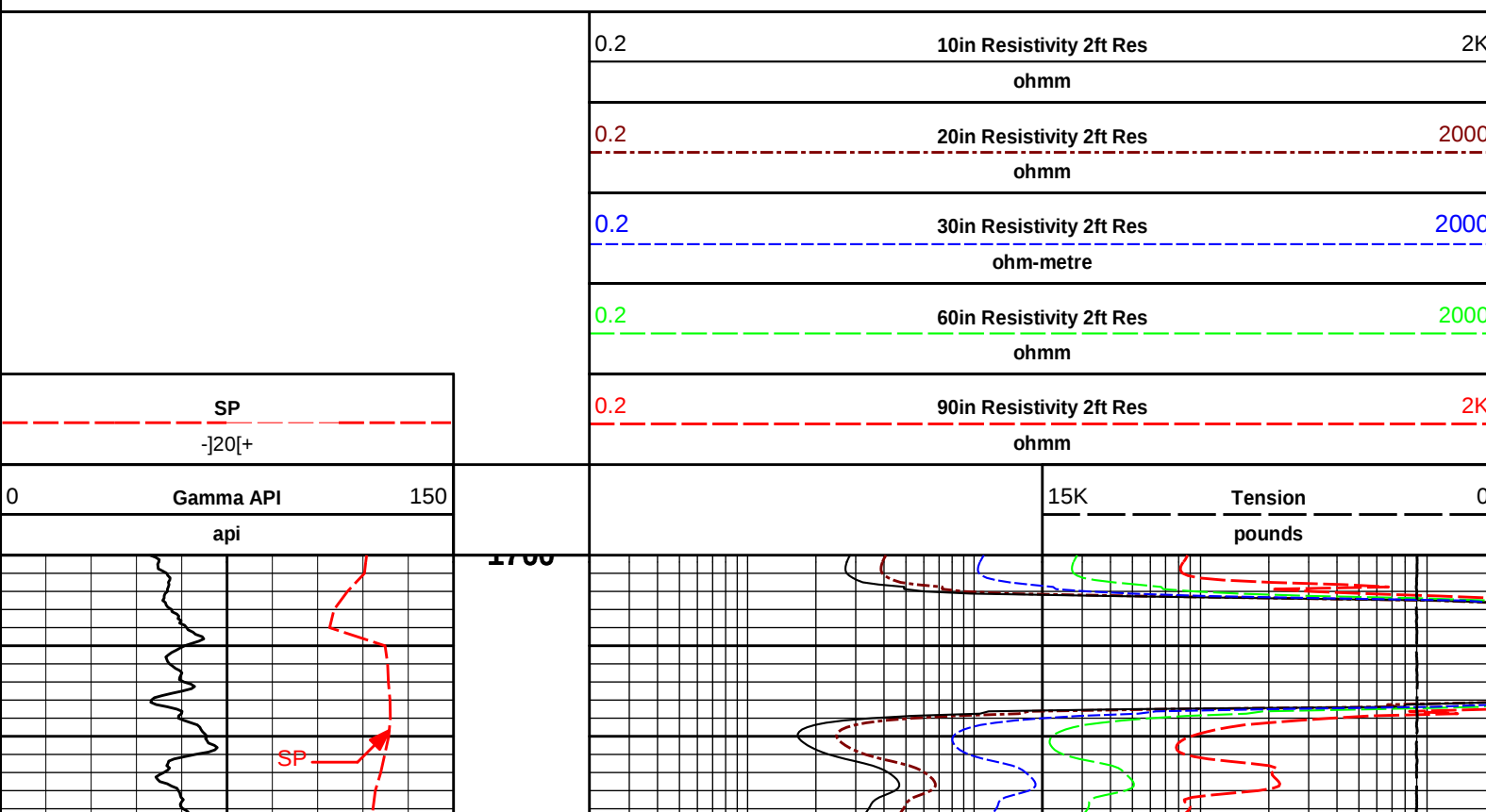
Plot Range: 1700 ft to 5656.83 ft

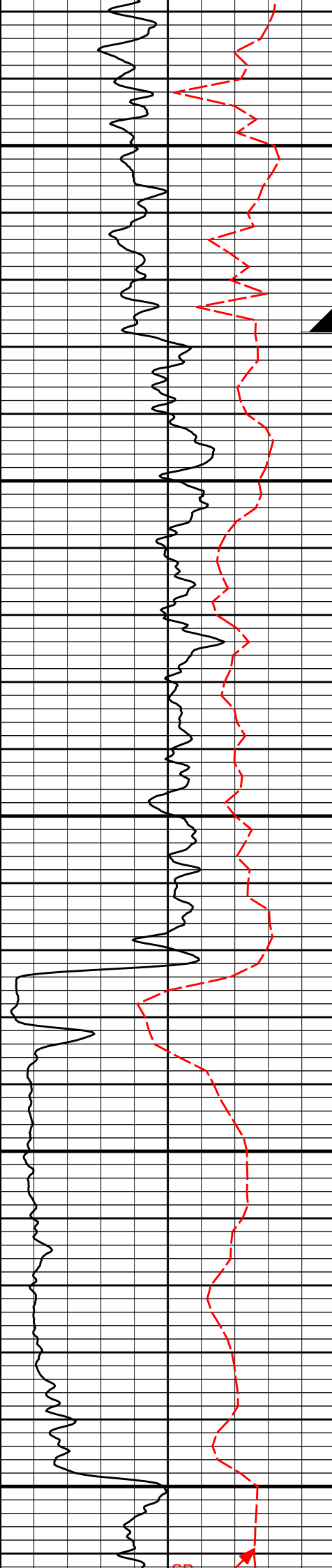
Data: MERIT_EENU_103\Well Based\MAIN_LOG\

Plot File: \\-LOCAL-IMERIT EENU 103\\0001 GTET-CSNG-GEM-DSNT-SDLT-FLEX-BSAT-ACRT\\ACRT-5\\ACRT 5inch main

5 INCH MAIN LOG

5 INCH MAIN LOG





CSG

1800

60in Resistivity 2ft Res

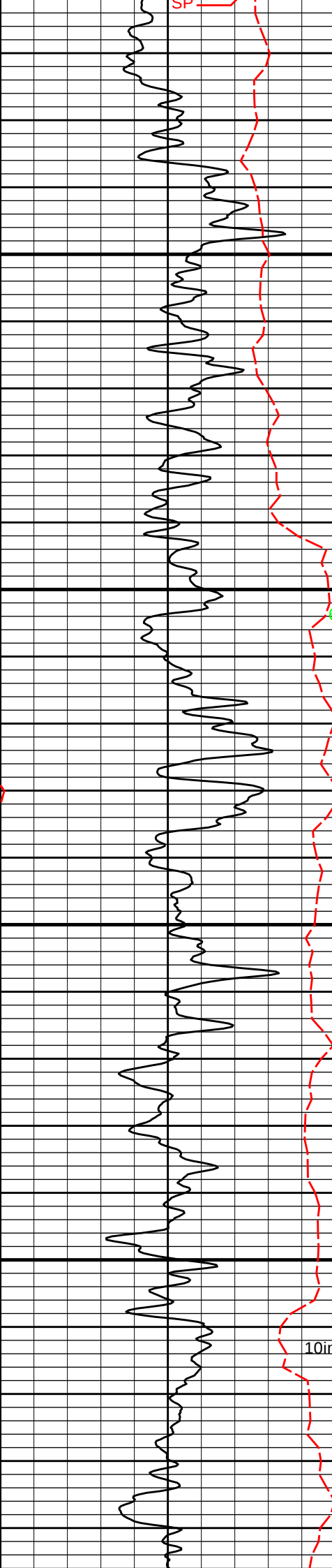
20in Resistivity 2ft Res

30in Resistivity 2ft Res

1900

10in Resistivity 2ft Res

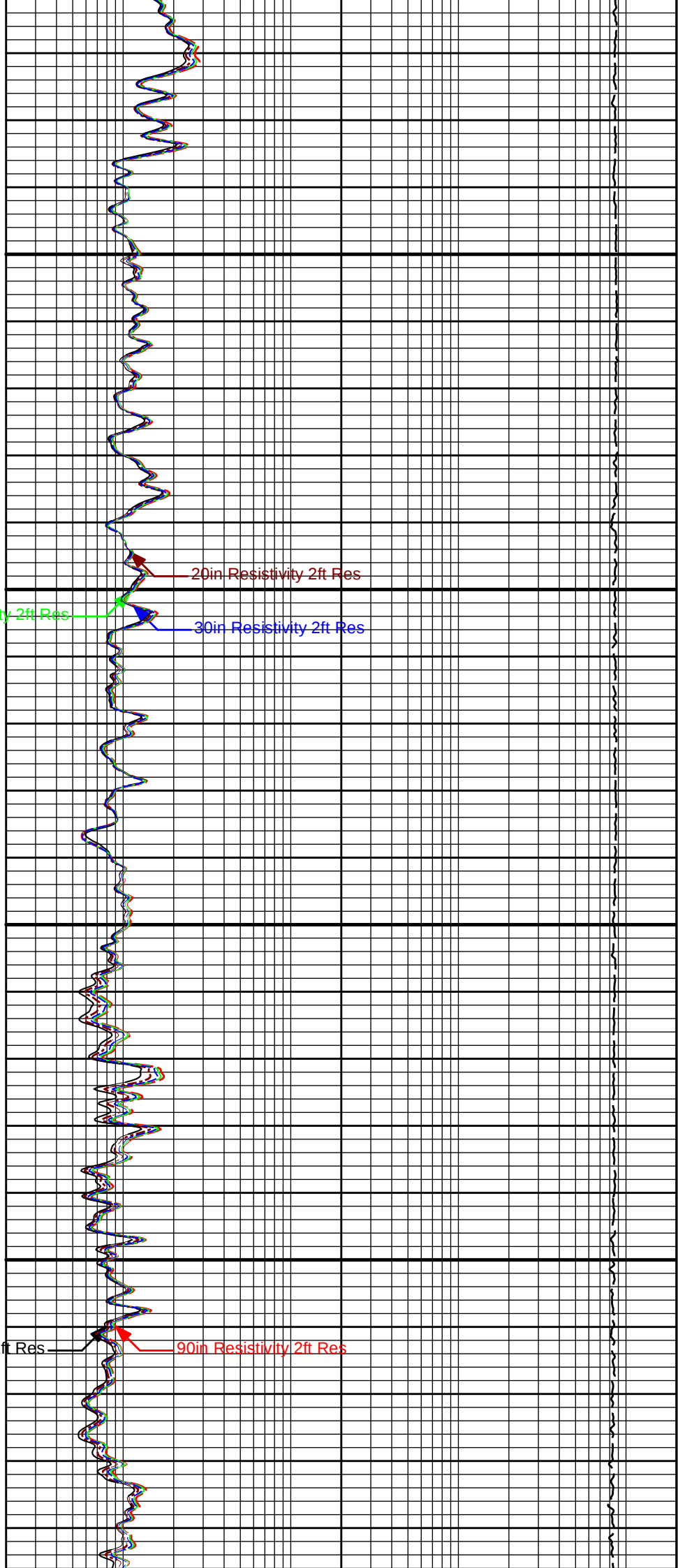
90in Resistivity 2ft Res



2000

2100

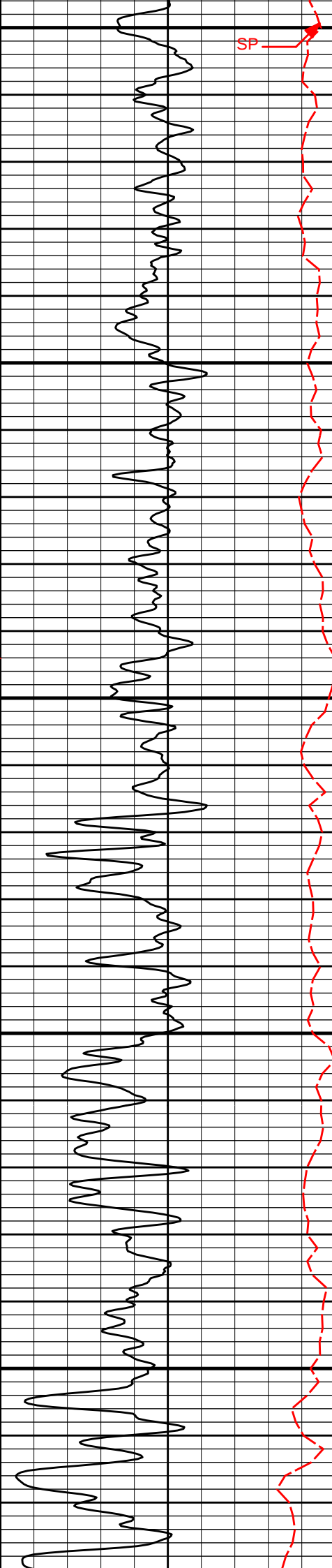
10in Resistivity 2ft Res



20in Resistivity 2ft Res

30in Resistivity 2ft Res

90in Resistivity 2ft Res



2200

SP

2300

2400

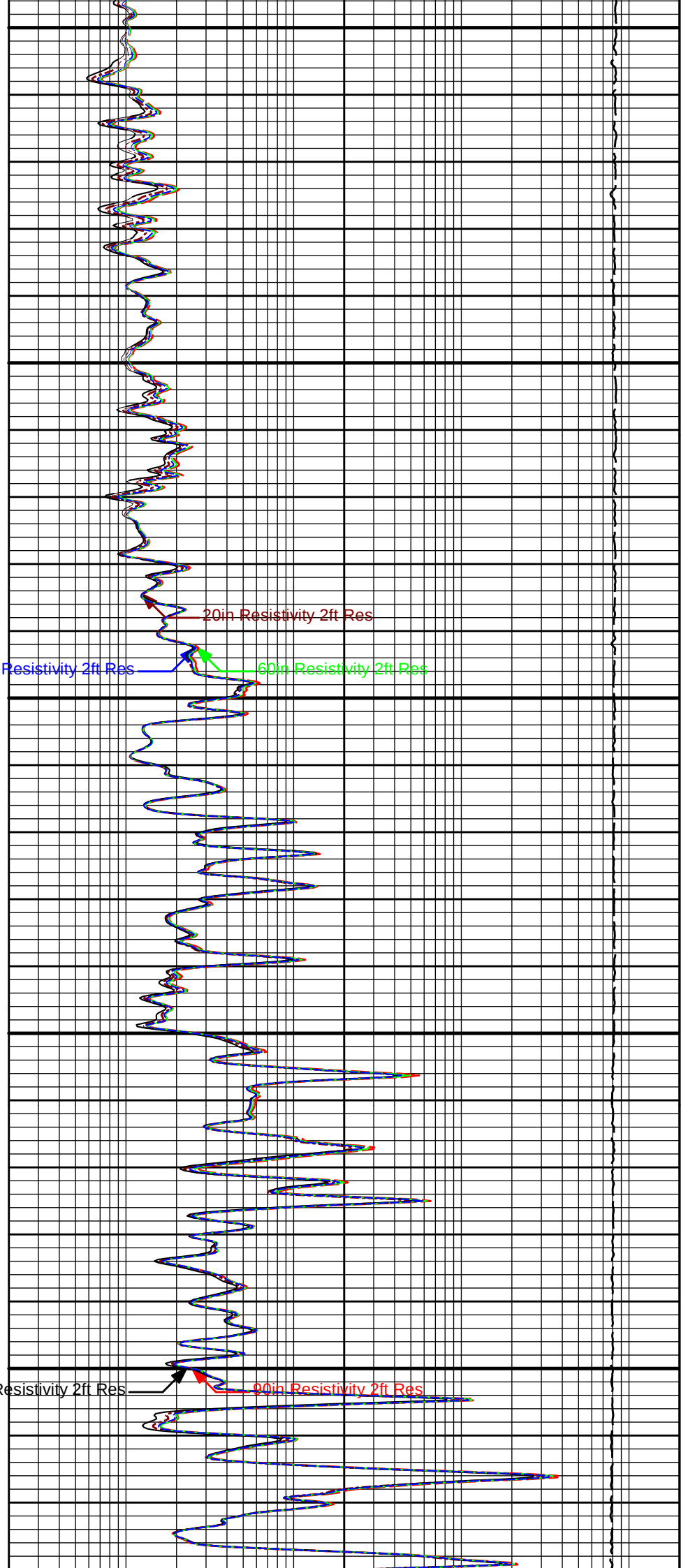
10in Resistivity 2ft Res

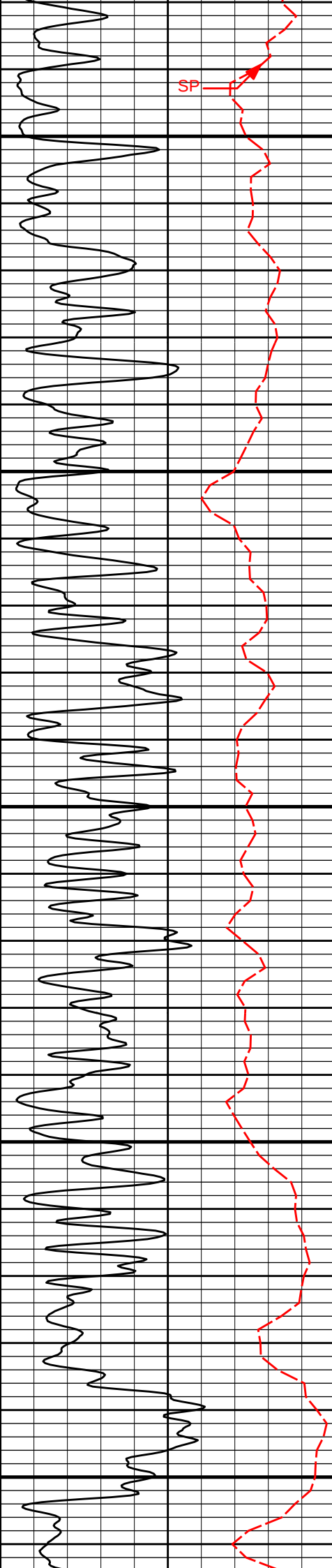
30in Resistivity 2ft Res

20in Resistivity 2ft Res

60in Resistivity 2ft Res

90in Resistivity 2ft Res

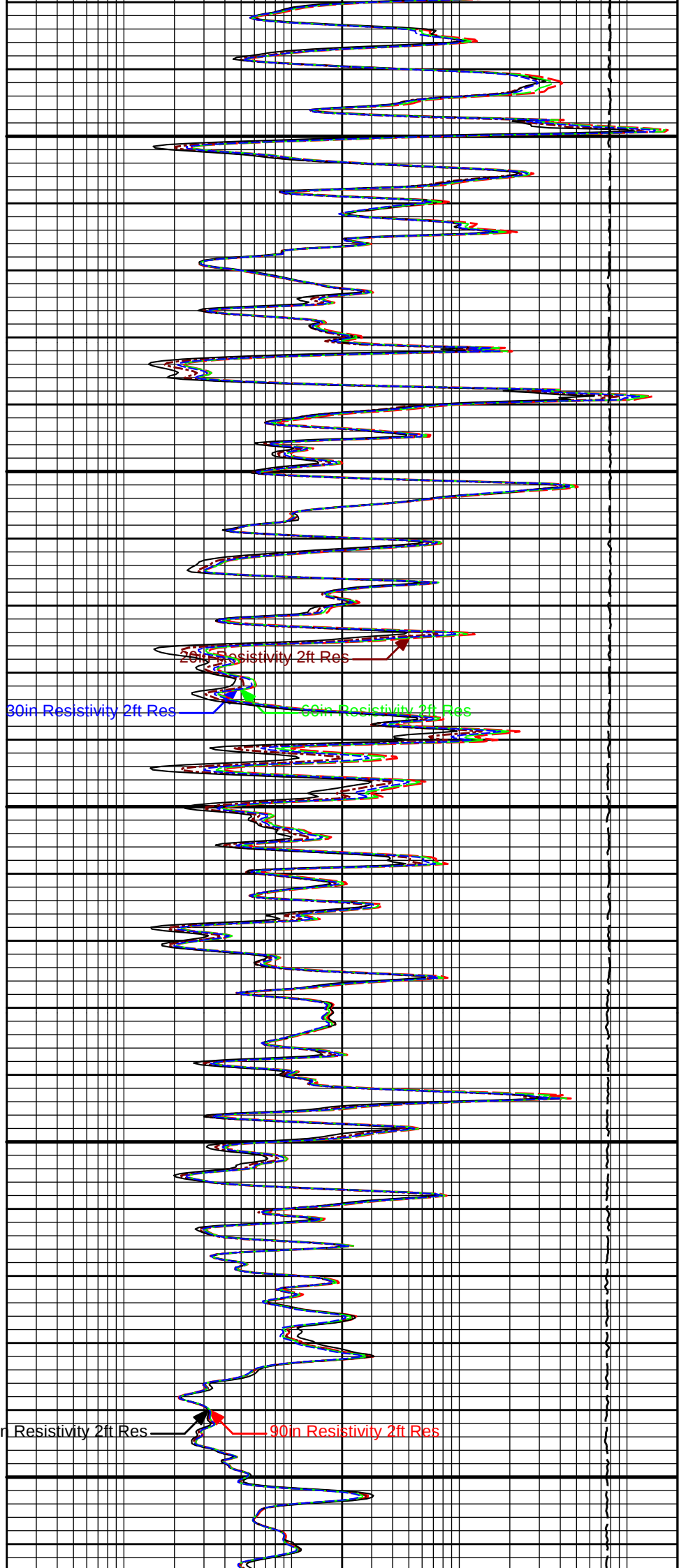




SP

2500

2600



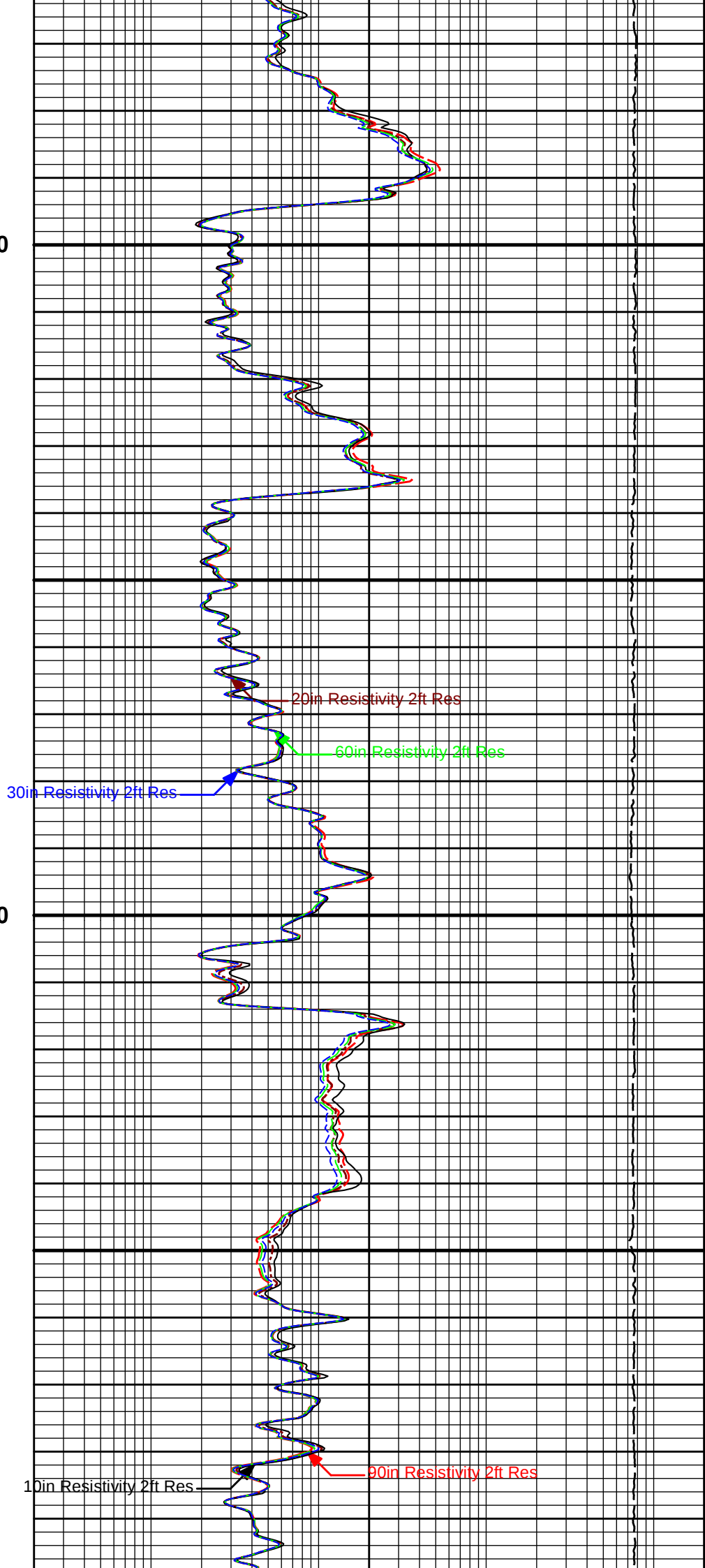
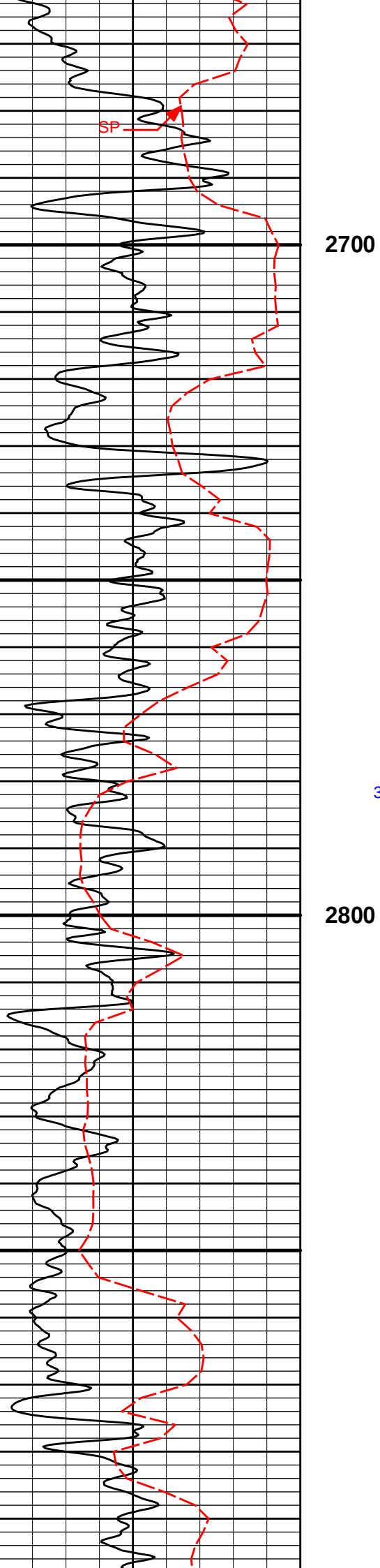
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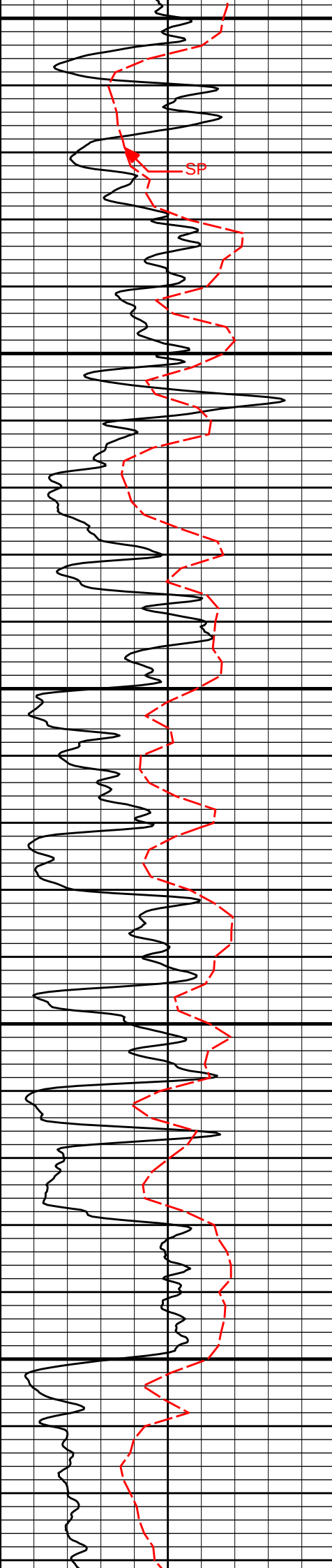
30in Resistivity 2ft Res

60in Resistivity 2ft Res

10in Resistivity 2ft Res

90in Resistivity 2ft Res

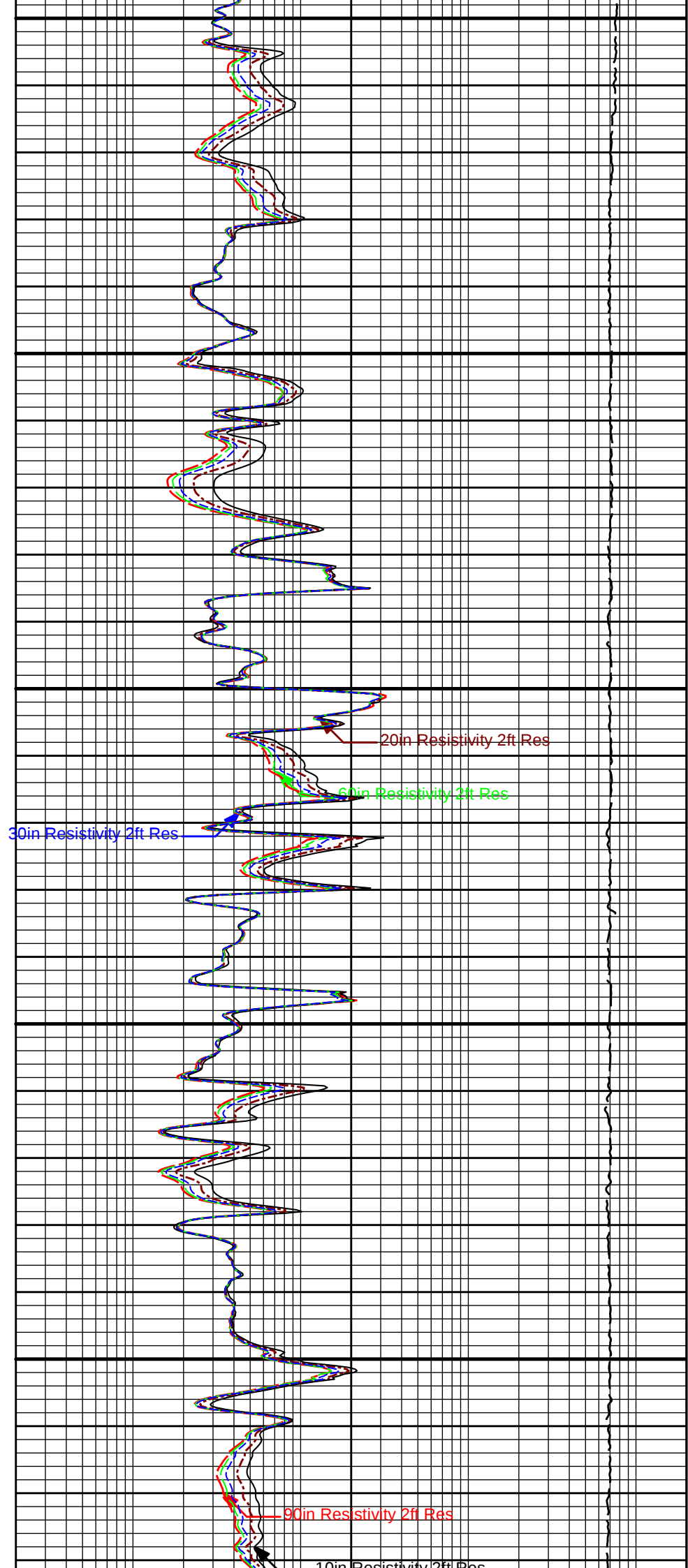


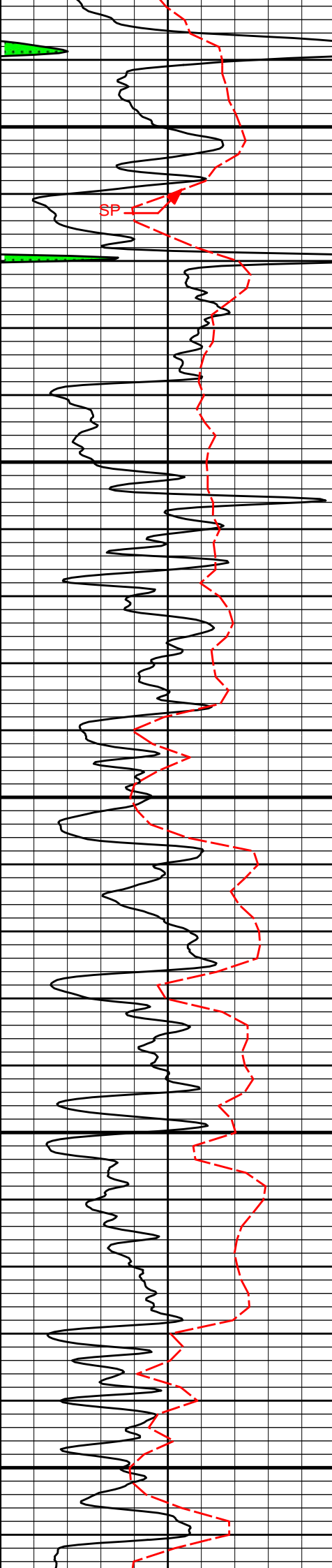


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3000

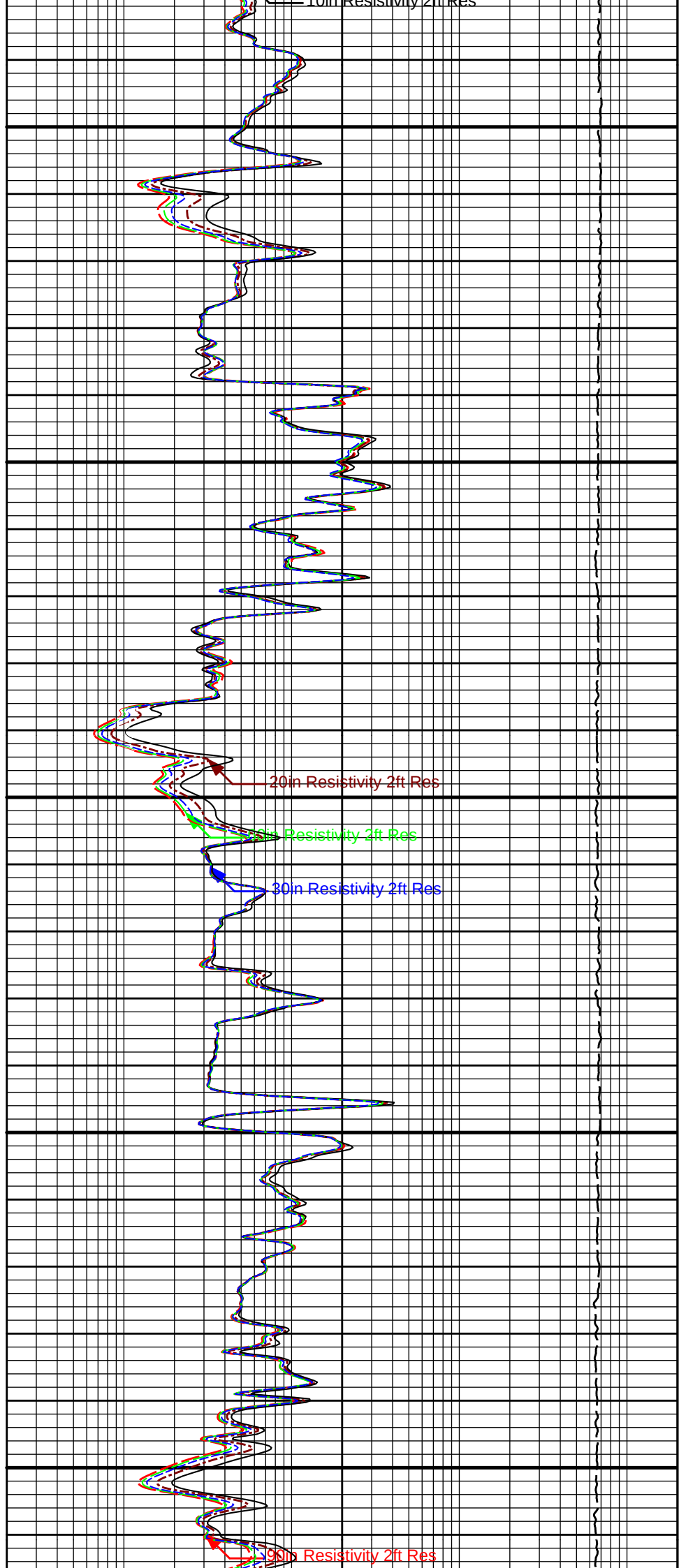
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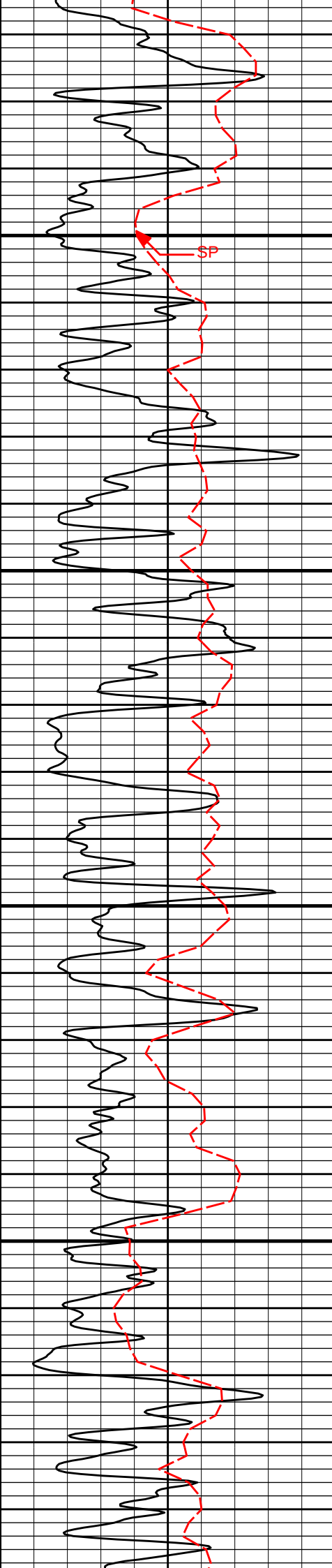




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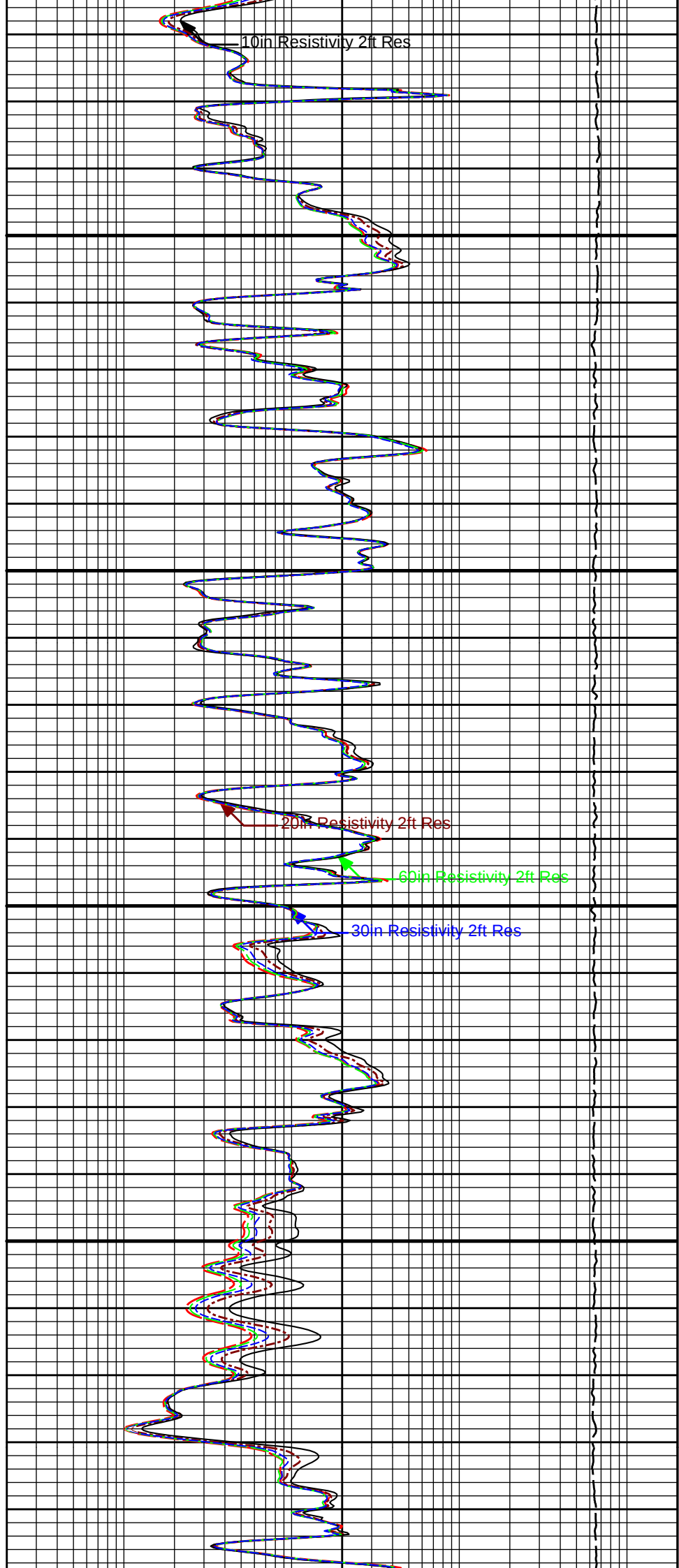
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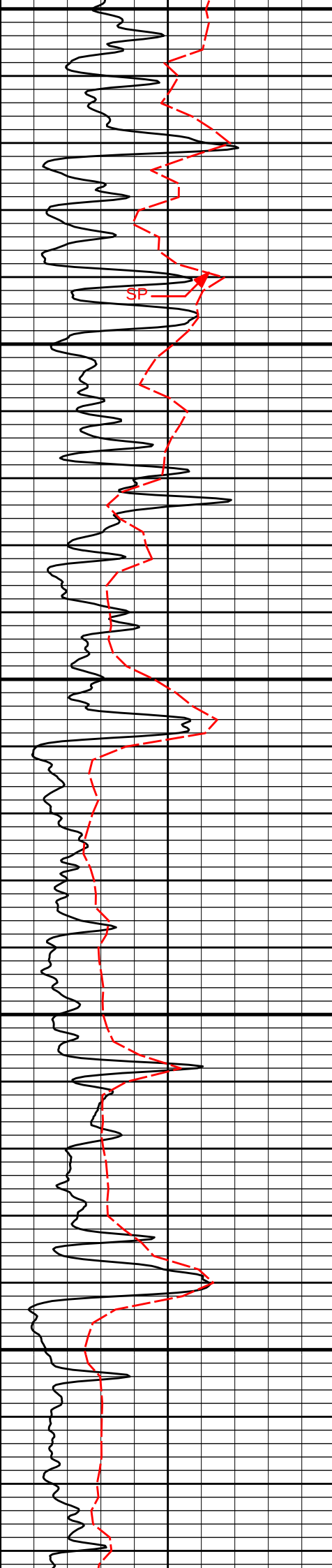




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3500

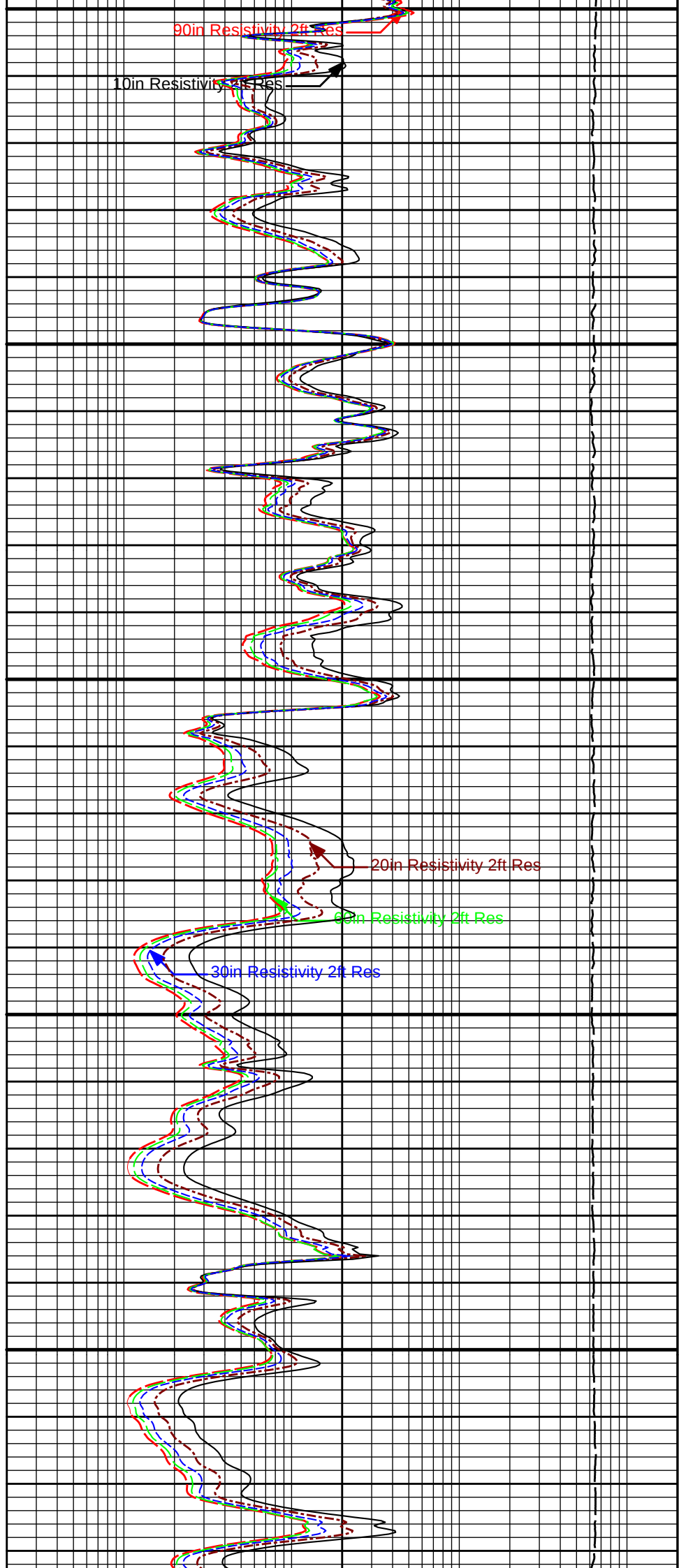




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3700

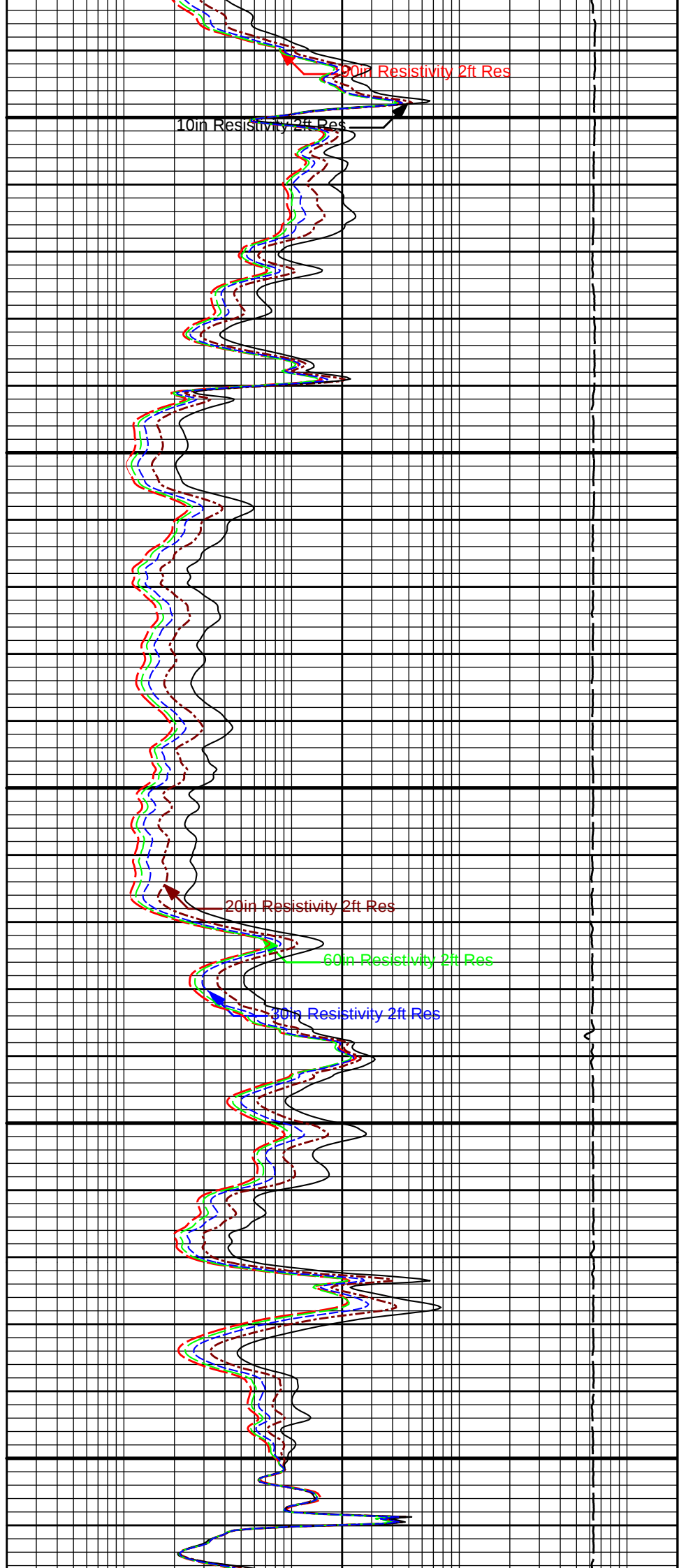
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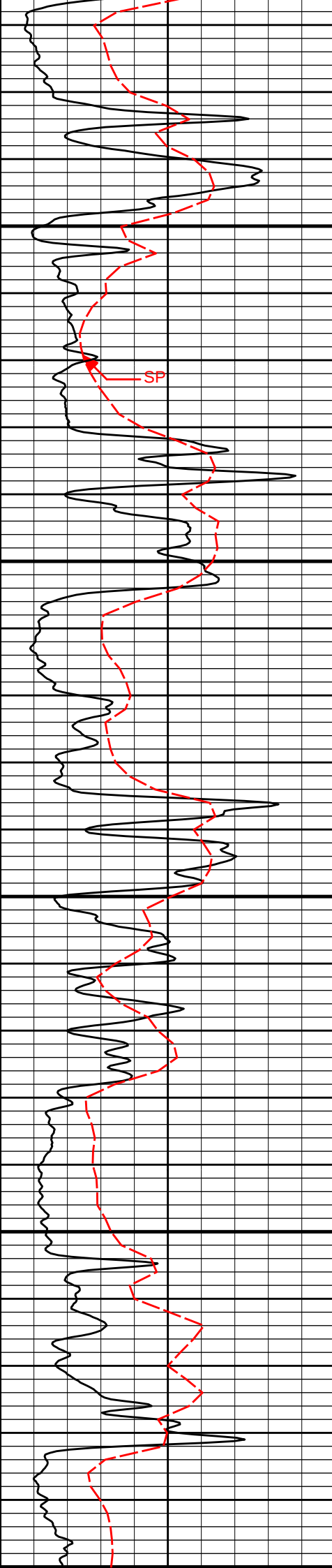




3900

4000

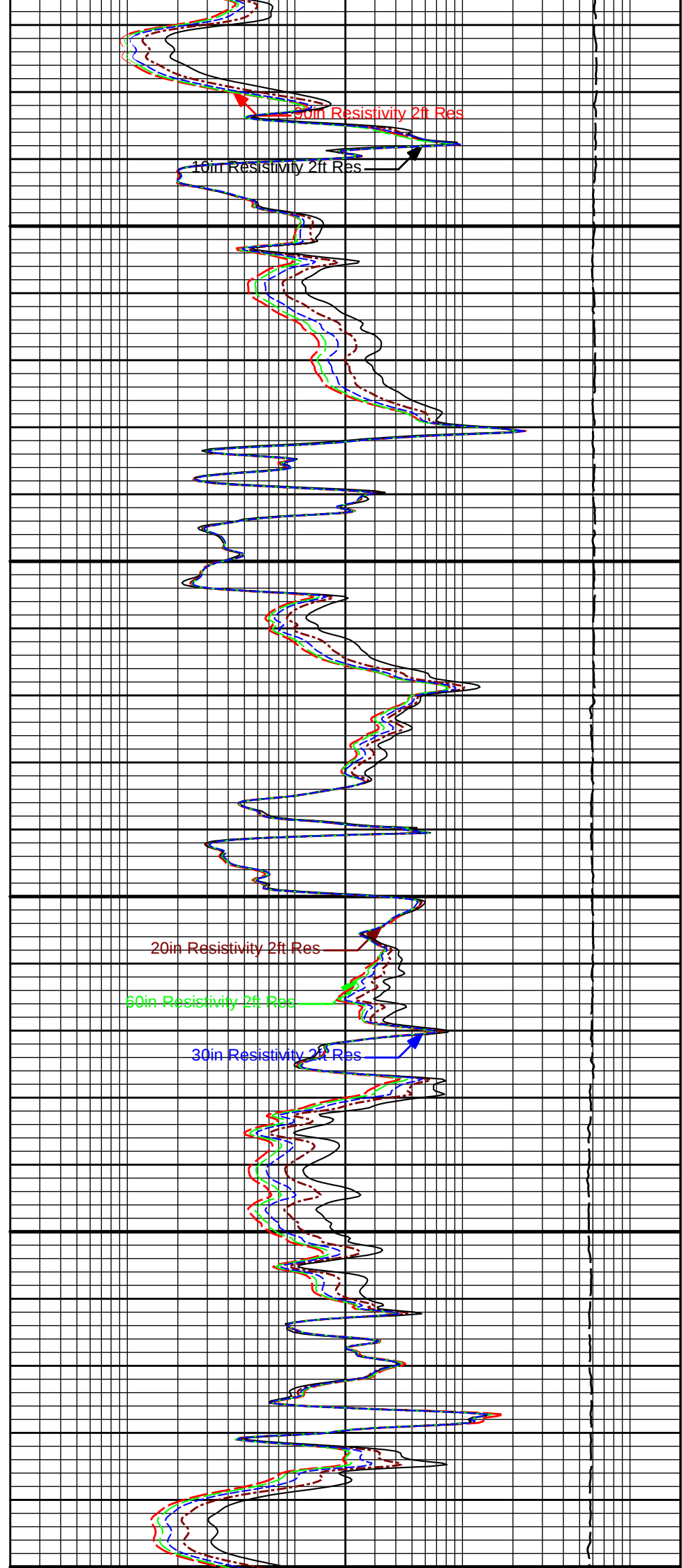


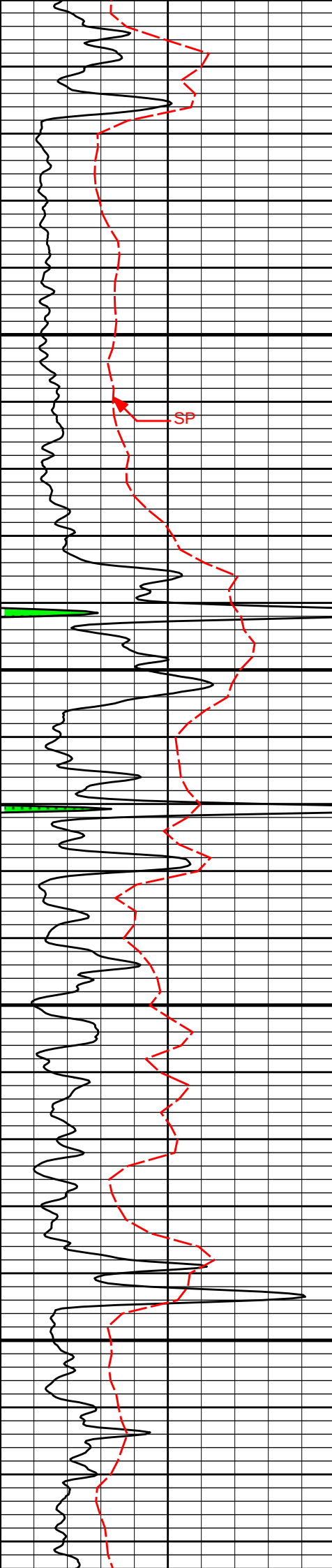


4100

4200

4300

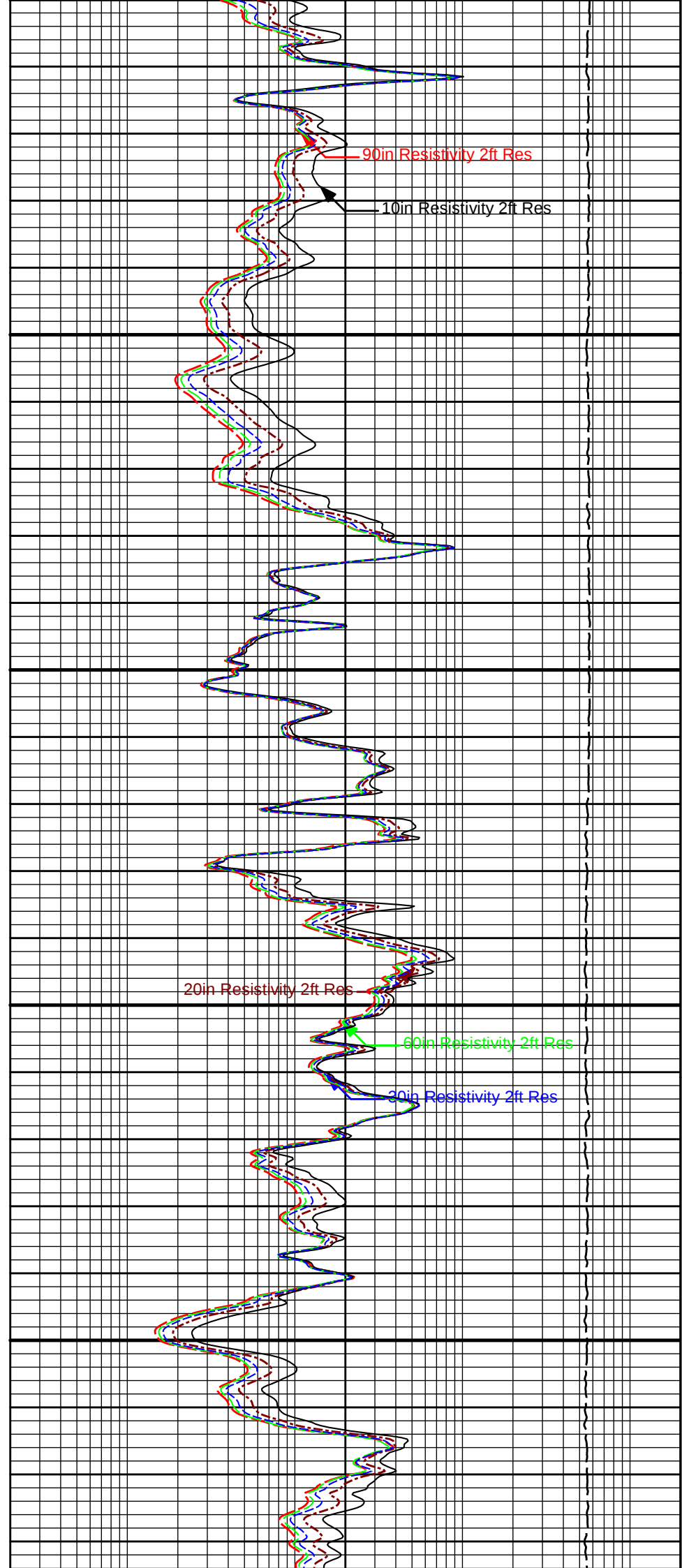


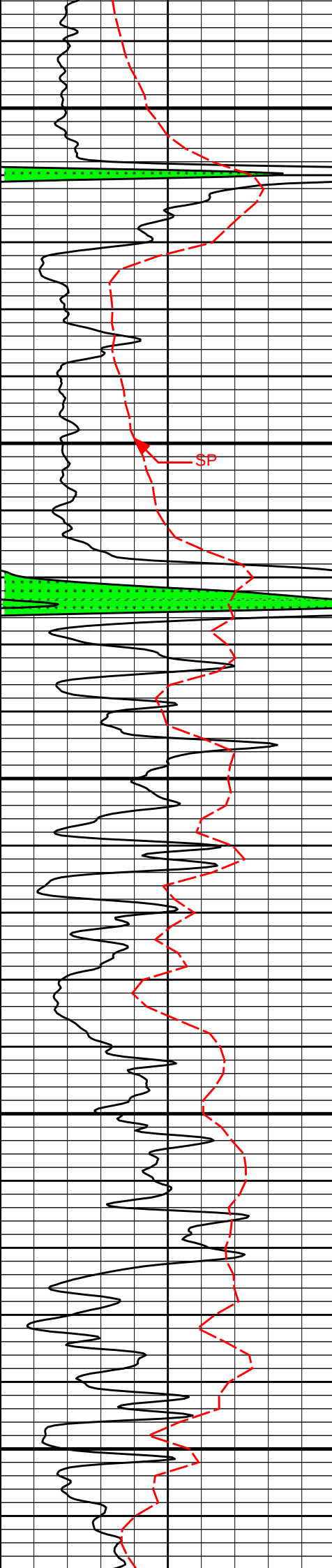


4300

4400

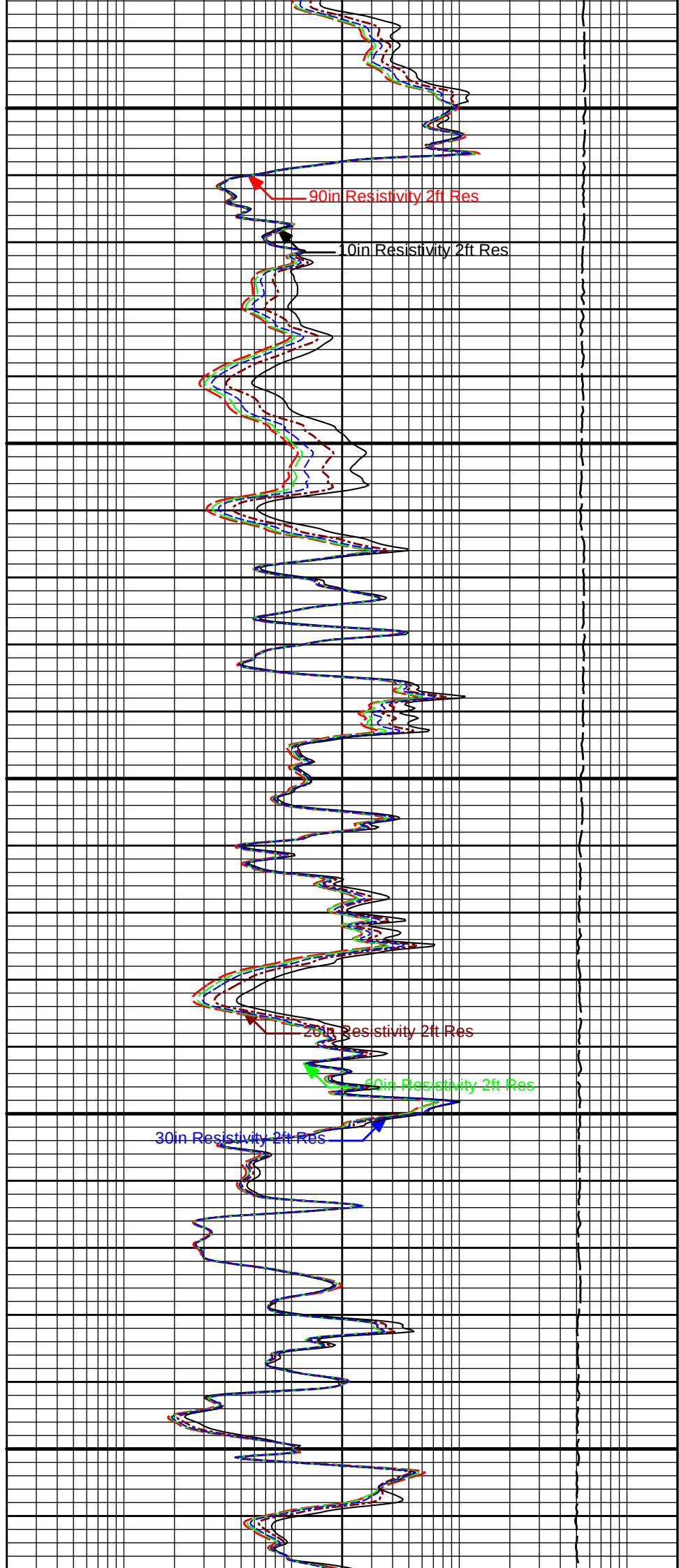
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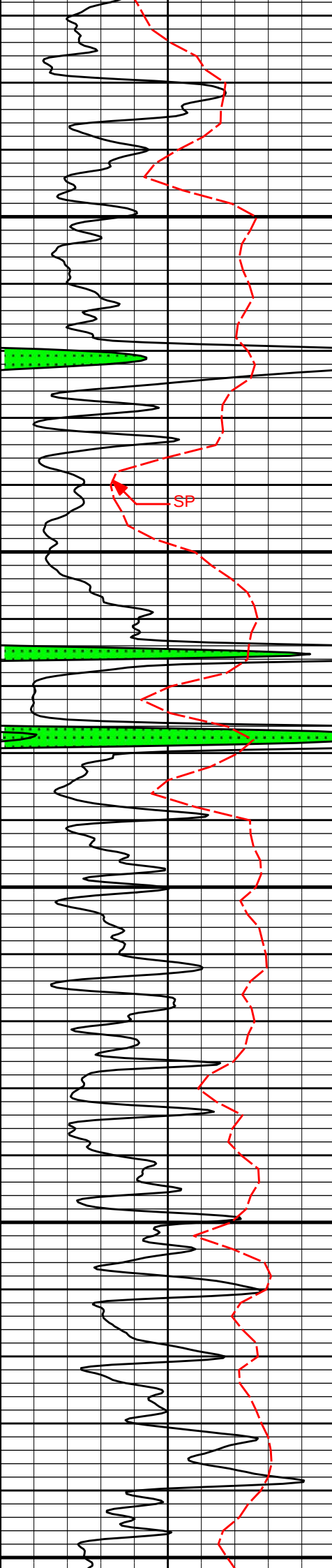




4600

4700

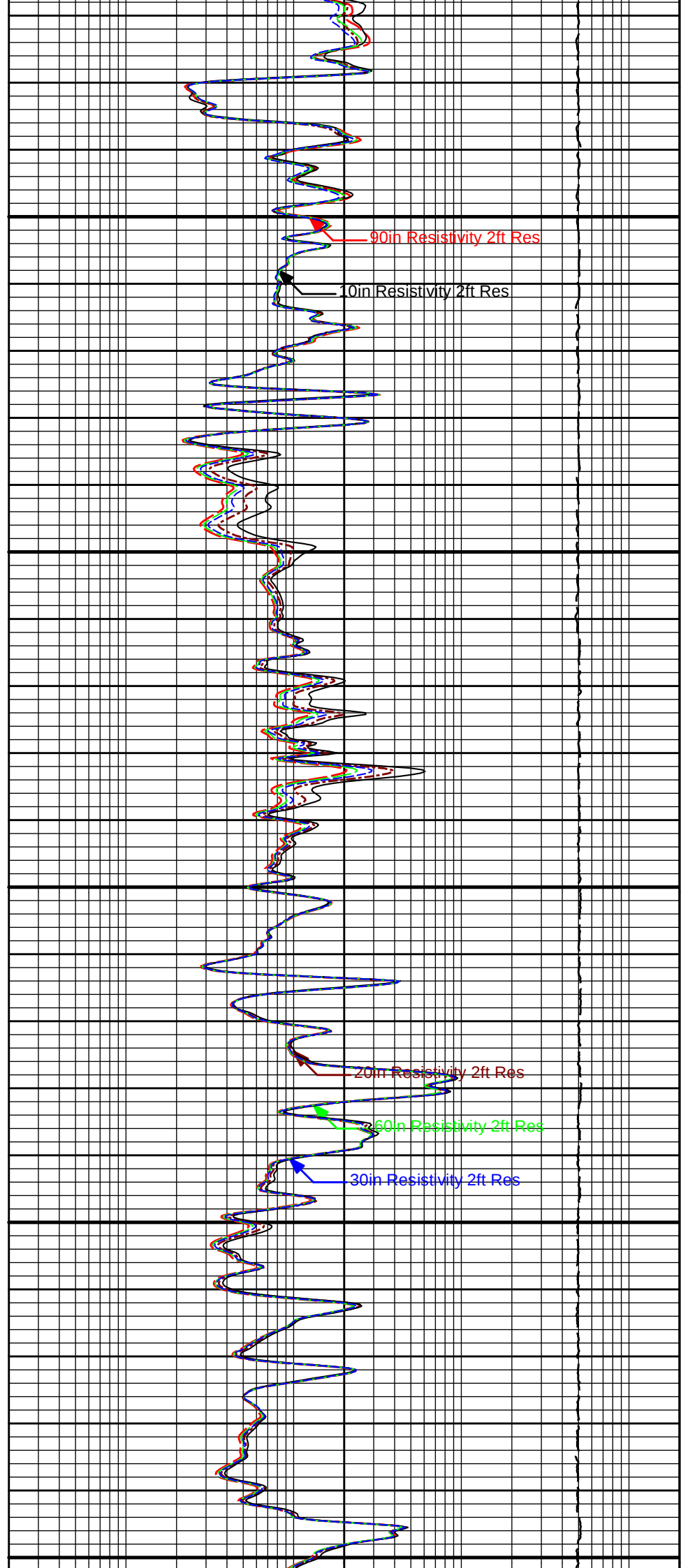


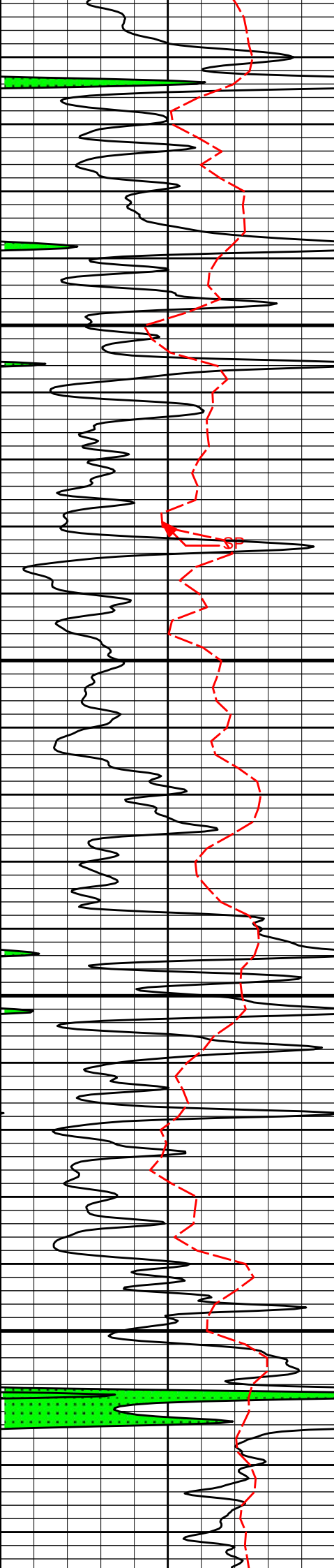


4800

4900

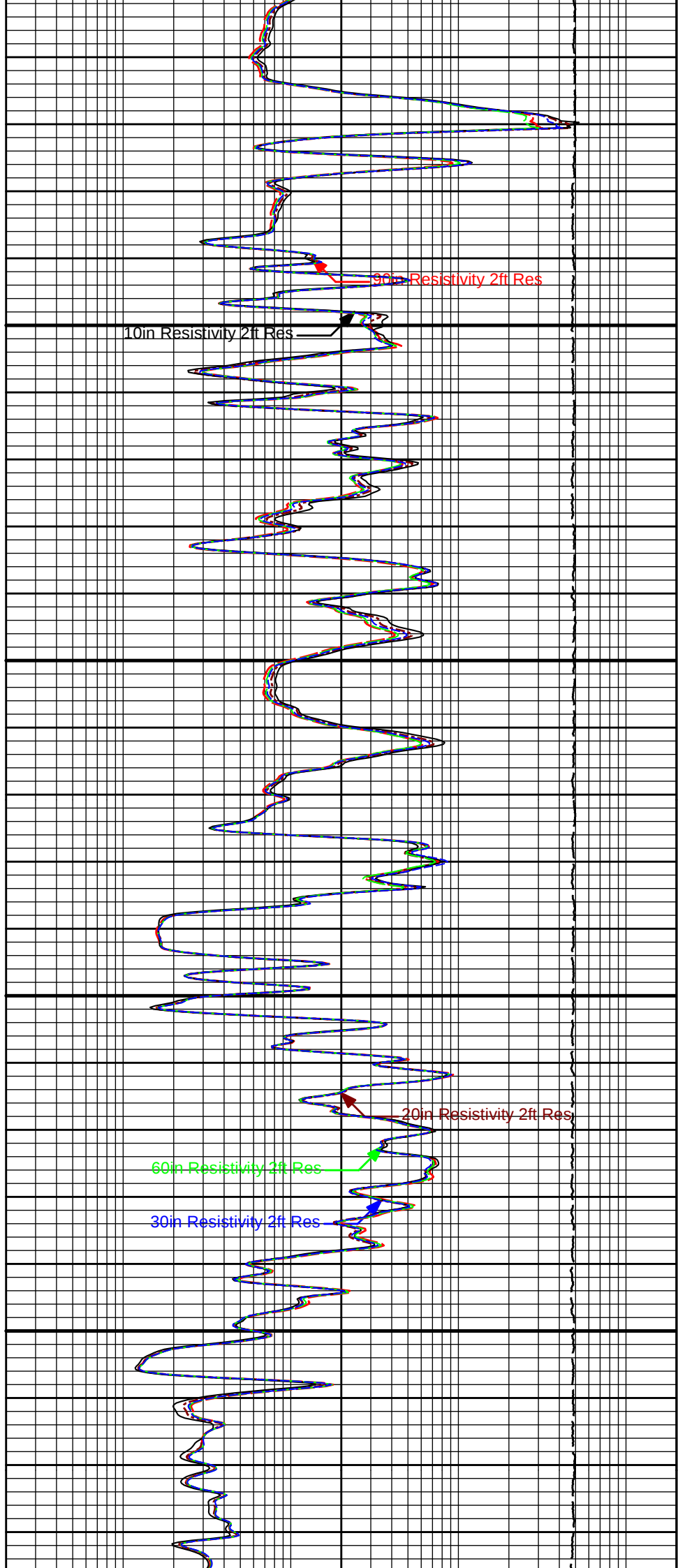
5000





5100

5200



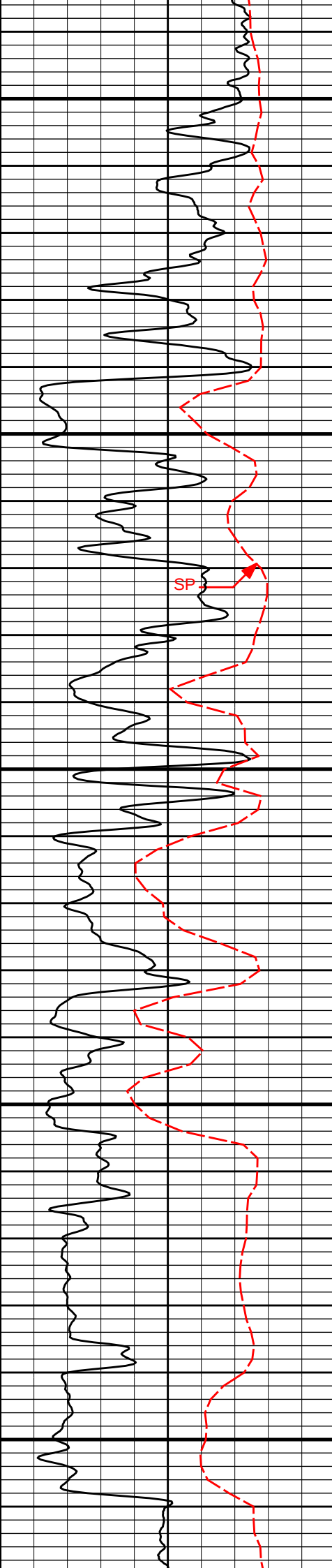
10in Resistivity 2ft Res

90in Resistivity 2ft Res

20in Resistivity 2ft Res

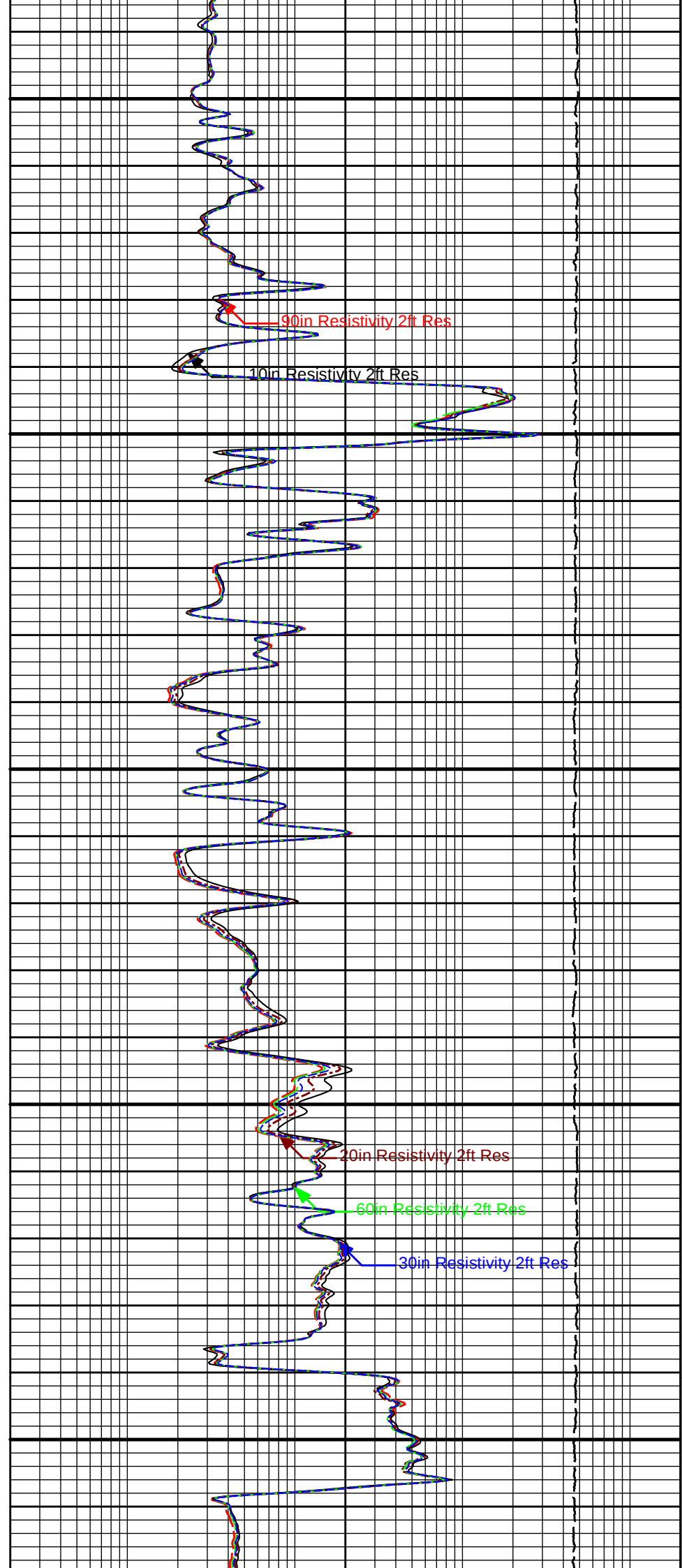
60in Resistivity 2ft Res

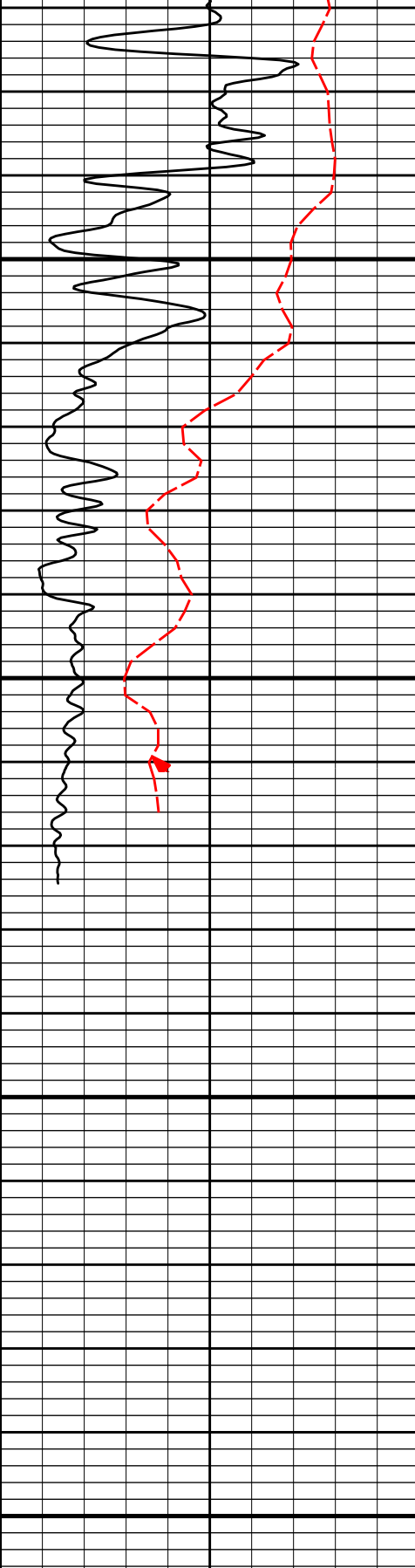
30in Resistivity 2ft Res



5300

5400



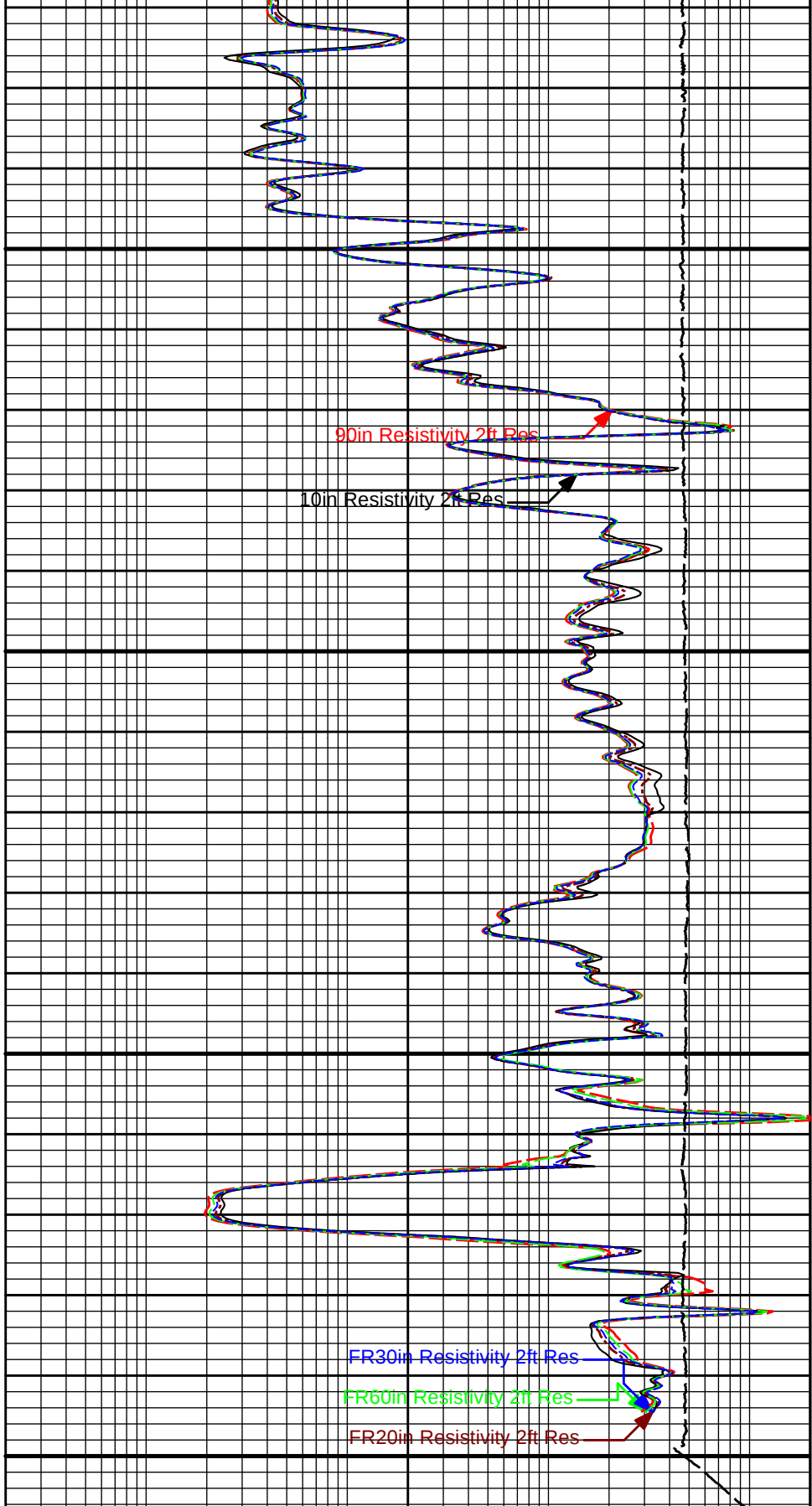


5500

5600

TD

0	Gamma API	150
	api	
	SP	
	-120[+	



90in Resistivity 2ft Res

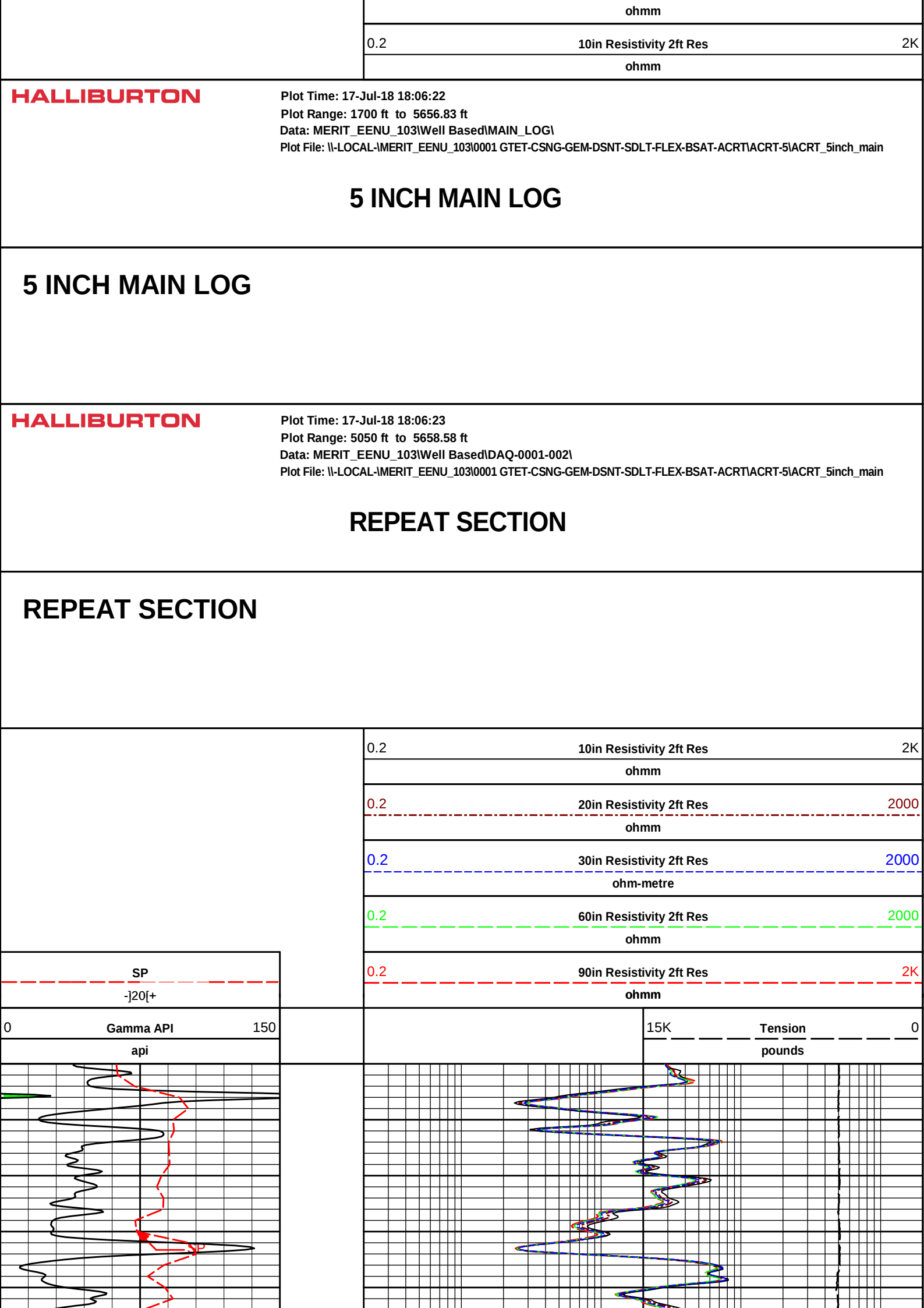
10in Resistivity 2ft Res

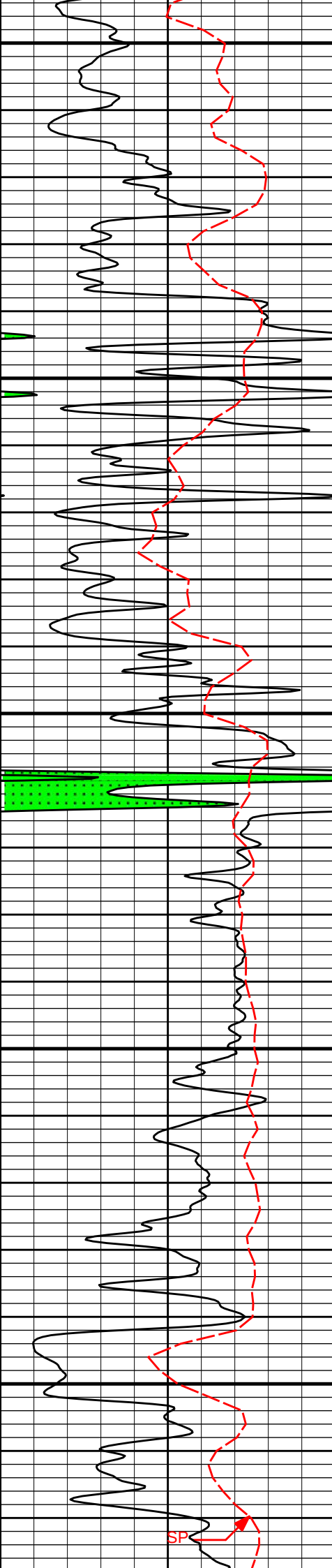
FR30in Resistivity 2ft Res

FR60in Resistivity 2ft Res

FR20in Resistivity 2ft Res

	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	



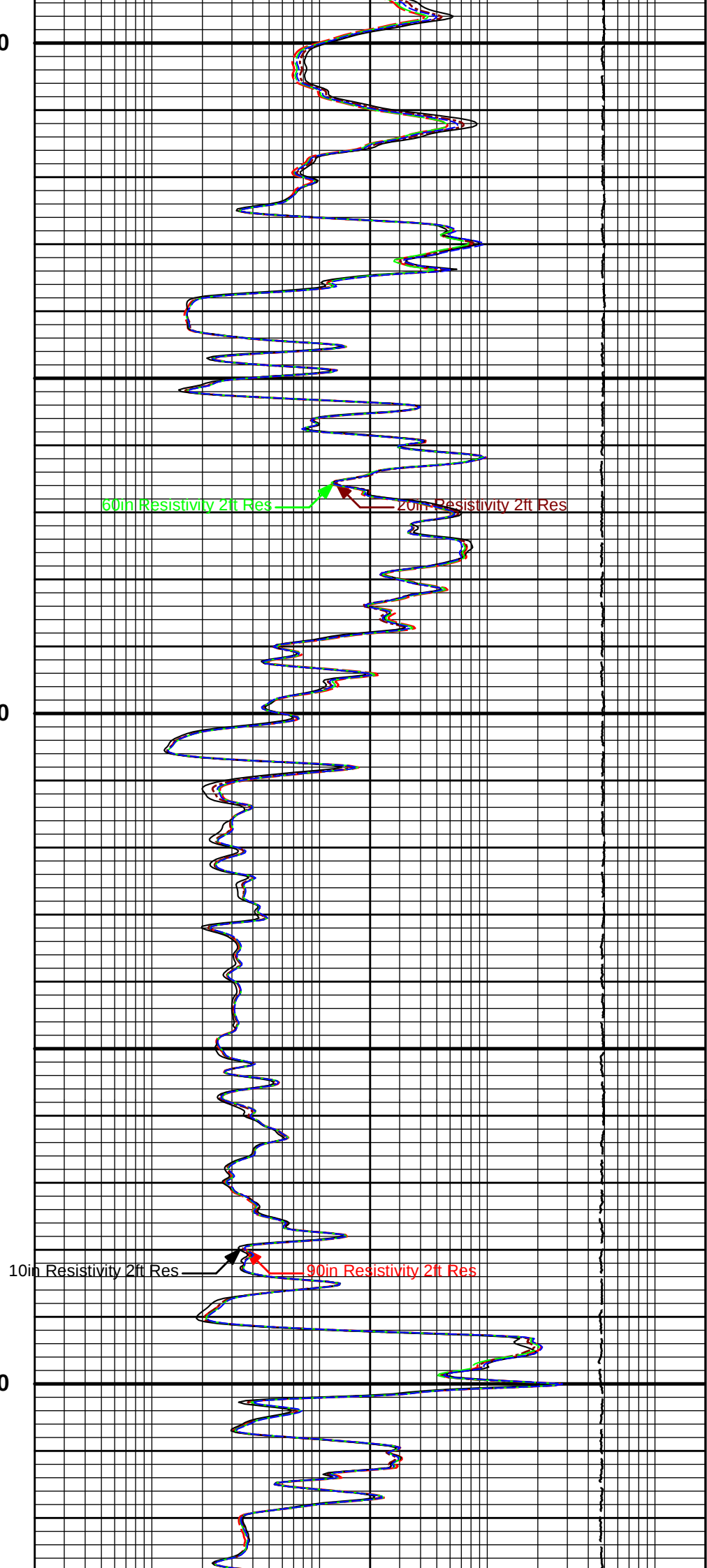


5100

5200

5300

SP

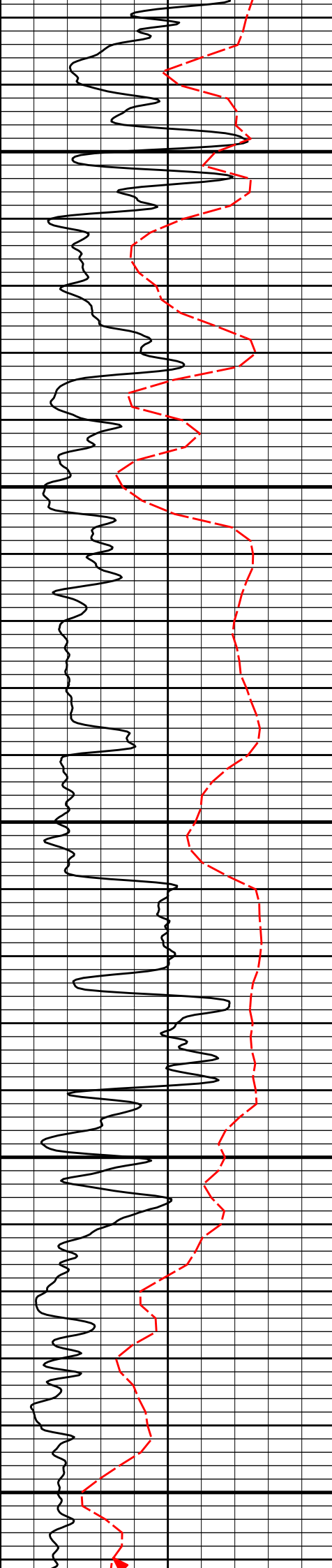


60in Resistivity 2ft Res

20in Resistivity 2ft Res

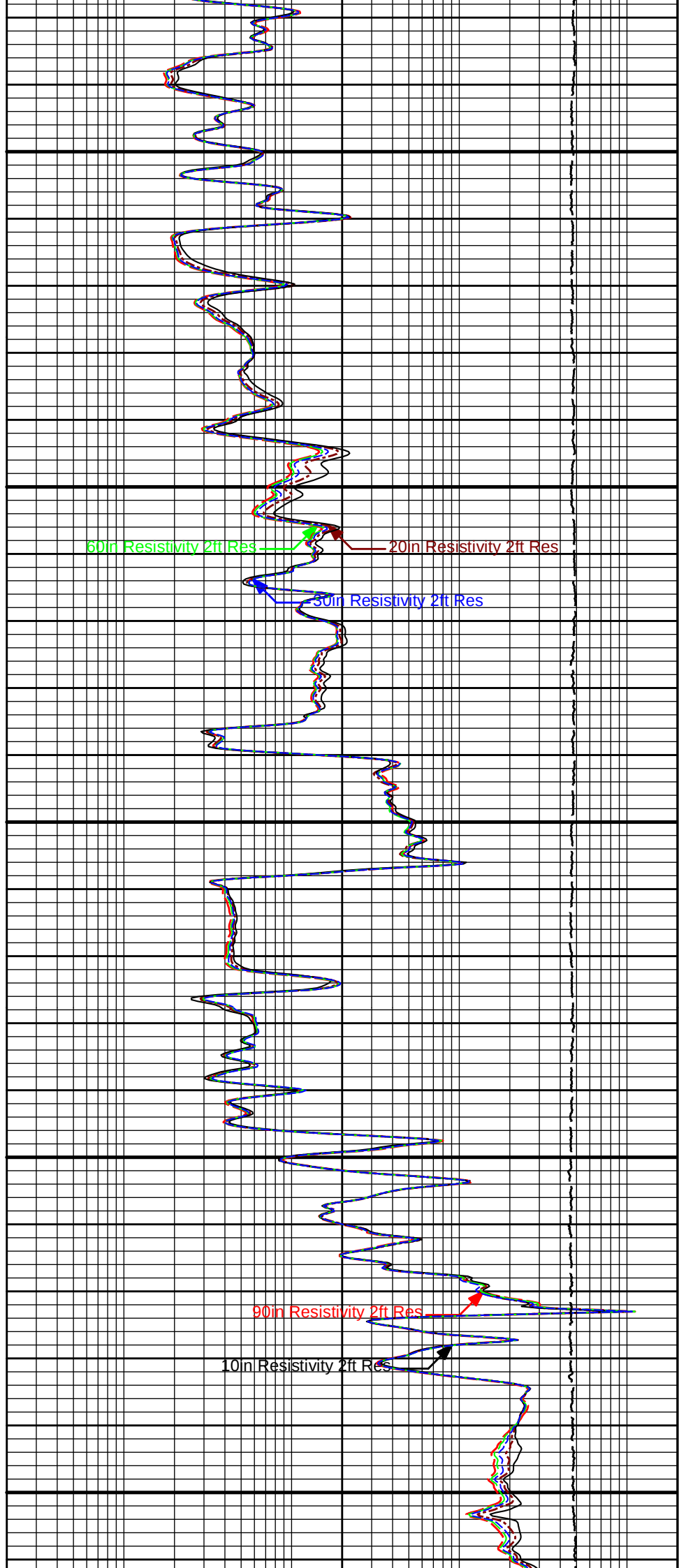
10in Resistivity 2ft Res

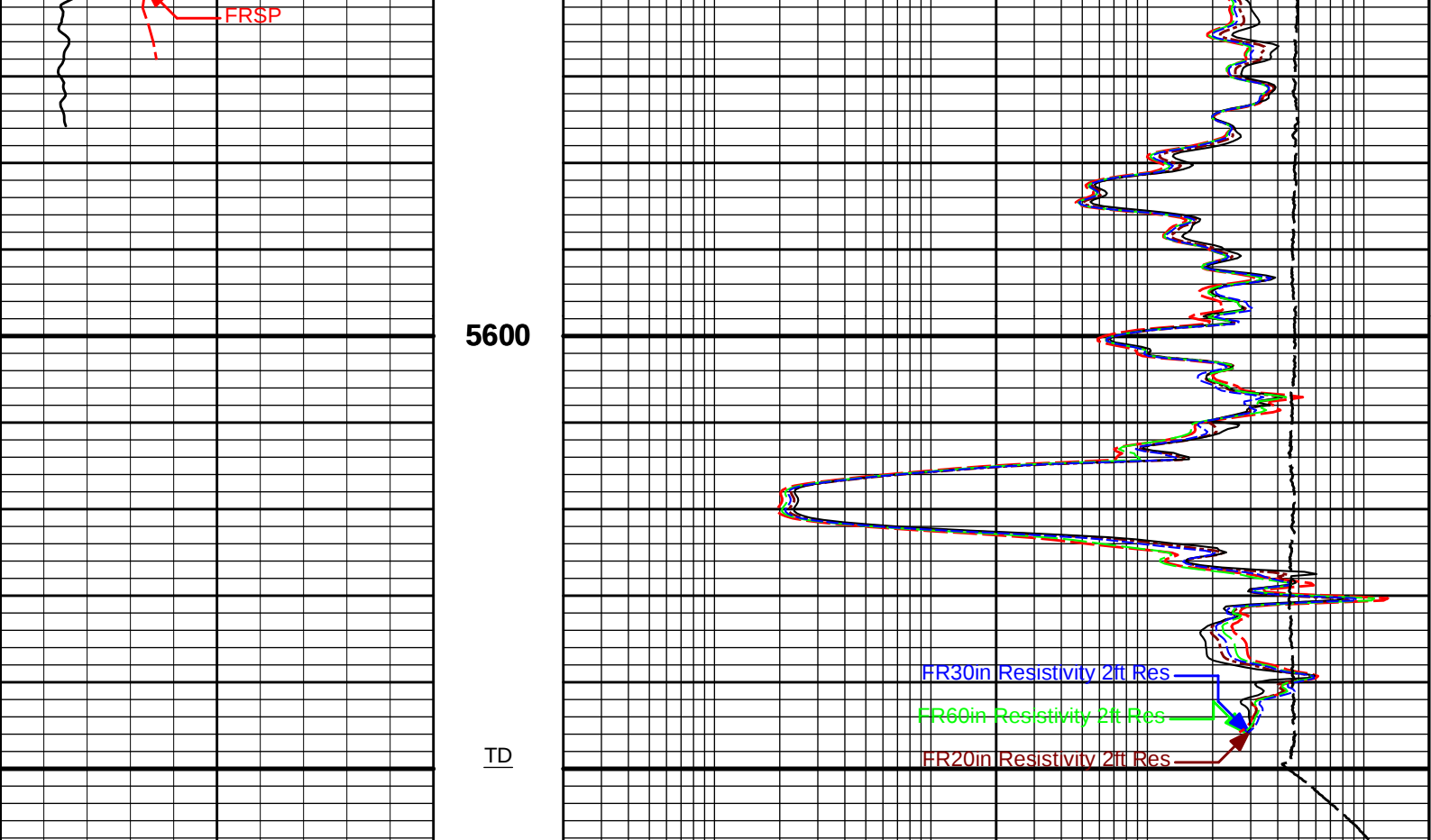
90in Resistivity 2ft Res



5400

5500





0	Gamma API	150	15K	Tension	0
	api			pounds	
0.2	SP		0.2	90in Resistivity 2ft Res	2K
	-]20[+			ohmm	
				60in Resistivity 2ft Res	2000
				ohmm	
				30in Resistivity 2ft Res	2000
				ohm-metre	
0.2			0.2	20in Resistivity 2ft Res	2000
				ohmm	
0.2			0.2	10in Resistivity 2ft Res	2K
				ohmm	

HALLIBURTON

Plot Time: 17-Jul-18 18:06:25
Plot Range: 5050 ft to 5658.58 ft
Data: MERIT_EENU_103\Well Based\DAQ-0001-002\
Plot File: \\LOCAL-1\MERIT_EENU_103\0001 GTET-CSNG-GEM-DSNT-SDLT-FLEX-BSAT-ACRT\ACRT-5\ACRT_5inch_main

REPEAT SECTION

REPEAT SECTION

SURFACE TENSION SHOP CALIBRATION					
Tool Name:	Depth Panel - 12345678			Reference Calibration Date:	27-Jun-18 03:39:14
Engineer:	SEAN WOLTEMATH			Calibration Date:	12-Jul-18 23:44:31
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1
	SURFACE TENSION LOAD CELL				
	Measurement	Load Cell Value	Measurement	Calibrated	Units
	Low	10207.56	-52.96	0.00	lbs
	High	17510.65	7775.56	7830.00	lbs
DOWNHOLE TENSION SHOP CALIBRATION					
Tool Name:	CH_HOS - CH_HOS_I			Reference Calibration Date:	02-Jul-18 07:44:16
Engineer:	SEAN WOLTEMATH			Calibration Date:	12-Jul-18 23:49:46
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1
	DOWNHOLE LOAD CELL				
	Measurement	Tool Value	Measurement	Calibrated	Units
	Low	-2112.64	-241.59	0.00	lbs
	High	14866.47	3732.34	1808.10	lbs
NATURAL GAMMA RAY TOOL SHOP CALIBRATION					
Tool Name:	GTET - 11013113			Reference Calibration Date:	02-Apr-18 09:34:23
Engineer:	WHITLOCK			Calibration Date:	02-May-18 11:20:36
Software Version:	WL INSITE R5.6.3 (Build 4)			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		20.8	20.8	api
	Background + Calibrator		246.4	246.7	api
	Calibrator		225.6	225.9	api
NATURAL GAMMA RAY TOOL FIELD CALIBRATION					
Tool Name:	GTET - 11013113			Reference Calibration Date:	02-May-18 11:20:36
Engineer:	WHITLOCK			Calibration Date:	15-Jul-18 11:44:38
Software Version:	WL INSITE R5.6.3 (Build 4)			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		20.8	24.2	api
	Background + Calibrator		246.7	246.9	api
	Calibrator		225.9	222.7	api
	Shop		Field	Difference	Tolerance
	225.9		222.7	3.2	+/- 9.00
CSNG-FS SHOP CALIBRATION					
Tool Name:	CSNG - 11328129			Reference Calibration Date:	16-Jul-18 11:31:26
Engineer:	WHITLOCK			Calibration Date:	16-Jul-18 11:53:19
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1
Source SN:	TB-79				
	TITANIUM CASE		Measured	Calibrated	Units
	60 KEV Peak Channel #		48.0	48.0	Channel #
	239 KEV Peak Channel #		22.7	22.7	Channel #

239 KEV Peak Channel #	22.7	22.7	Channel #
583 KEV Peak Channel #	50.6	50.3	Channel #
2614 KEV Peak Channel #	206.9	206.4	Channel #
Calibrate Temperature	103.3	108.6	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 222.00 API
Calibrator Value: 252.1 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1396.5	CPS	269.0	269.4	API
Background	89.5	CPS	16.9	17.3	API

Gamma Ray Gain: 0.97
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name:	CSNG - 11328129	Reference Calibration Date:	16-Jul-18 11:53:19
Engineer:	WHITLOCK	Calibration Date:	16-Jul-18 12:04:51
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	22.7	22.9	Channel #
583 KEV Peak Channel #	50.3	50.8	Channel #
2614 KEV Peak Channel #	206.4	207.7	Channel #
Calibrate Temperature	108.6	111.5	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 222.00 API
Calibrator Value: 252.1 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1384.5	CPS	269.4	269.3	API
Background	88.4	CPS	17.3	17.2	API

Gamma Ray Gain: 0.98
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11019641	Reference Calibration Date:	23-Feb-18 10:39:09
Engineer:	WHITLOCK	Calibration Date:	01-Apr-18 11:42:15
Software Version:	WL INSITE R5.6.3 (Build 4)	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: 72 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value

Gain:	0.98237	0.98197	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2359	0.2358	0.0001	+/- 0.0020
Calibrated Ratio:	10.5640	10.5596	0.004	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0770	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 - 11019641	Reference Calibration Date:	01-Apr-18 11:42:15
Engineer:	WHITLOCK	Calibration Date:	15-Jul-18 10:55:54
Software Version:	WL INSITE R5.6.3 (Build 4)	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):	0.0770	0.0754	-0.0016	+/- 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:	01-Jan-70 00:00:00
Engineer:	WHITLOCK	Calibration Date:	08-Jun-18 16:19:27
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Host Tool Name:	DSNT - 11019641		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3977.11	-3977.11	-7000.00 - -1000.00
Pad Gain	0.0003897	0.0003897	0.0002000 - 0.0006000
Arm Offset	-3073.13	-3073.13	-5000.00 - 3000.00
Arm Gain	0.0005210	0.0005210	0.000300 - 0.000700
Arm Power	-0.000005094	-0.000005094	-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		
PASS/FAIL SUMMARY					
Calibration-Coefficients Range Check:			Passed		

SDLT CALIPER FIELD CALIBRATION					
Tool Name:	SDLT - 10960494		Reference Calibration Date:	08-Jun-18 16:19:27	
Engineer:	WHITLOCK		Calibration Date:	15-Jul-18 11:48:30	
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1	

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.79	0.04	+/- 0.10
Ring Diameter	8.25	8.25	-0.00	+/- 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:	23-Feb-18 10:15:37
Engineer:	WHITLOCK	Calibration Date:	06-Jun-18 13:24:46
Software Version:	WL INSITE R5.6.3 (Build 4)	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	1.0279	1.05	0.95	1.0076	1.05	0.95	0.9997	1.05
A2 (50")	0.95	1.0334	1.05	0.95	1.0139	1.05	0.95	1.0097	1.05
A3 (29")	0.95	1.0346	1.05	0.95	1.0146	1.05	0.95	1.0081	1.05
A4 (17")	0.95	1.0279	1.05	0.95	1.0063	1.05	0.95	1.0018	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0001	1.05	0.95	0.9950	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9869	1.05	0.95	0.9818	1.05

SONDE OFFSET									
Subarray	R12KHz			R36KHz			R72KHz		
	(mmho/m)			(mmho/m)			(mmho/m)		
A1 (80")	0.315			-4.964			-5.711		
A2 (50")	0.409			-3.450			-5.485		
A3 (29")	-11.648			-3.720			-3.783		
A4 (17")	-90.980			-28.724			-23.707		
A5 (10")	N/A			-76.200			-37.537		
A6 (6")	N/A			280.488			149.005		

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.82	1.3	Mud Cell	0.95	0.99	1.05
36K	1.0	1.80	2.0				
72K	1.0	1.05	2.0				
PASS/FAIL SUMMARY							
GAIN RANGE CHK				PASS			
SONDE OFFSET CHK				PASS			
TOOL OK TO LOG							

QUALITY CHECK SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11830728	Reference Calibration Date:	23-Feb-18 10:21:17
Engineer:	WHITLOCK	Calibration Date:	06-Jun-18 14:01:20
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Host Tool Name:	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	-0.006	> -0.500	Pass	-0.022	> -0.500	Pass
A5 (10")	-0.010	> -0.500	Pass	-0.017	> -0.500	Pass	-0.036	> -0.500	Pass
A6 (6")	0.014	< 0.500	Pass	0.063	< 0.500	Pass	0.138	< 0.500	Pass

GAIN TOLERANCE					
R12KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-213173456.000	-213653808.000	480352.000	10682690.400	Pass
A2 (50")	-205651744.000	-206143280.000	491536.000	10307164.000	Pass
A3 (29")	-200817664.000	-201197776.000	380112.000	10059888.800	Pass
A4 (17")	-200193568.000	-200629872.000	436304.000	10031493.600	Pass
A5 (10")	-200252336.000	-200678960.000	426624.000	10033948.000	Pass
A6 (6")	-199820688.000	-200219344.000	398656.000	10010967.200	Pass
R36KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	48114080.000	48477272.000	363192.000	2423863.600	Pass

A2 (50")	33966292.000	34324412.000	358120.000	1716220.600	Pass
A3 (29")	28032378.000	28346680.000	314302.000	1417334.000	Pass
A4 (17")	27853682.000	28207516.000	353834.000	1410375.800	Pass
A5 (10")	27373208.000	27716930.000	343722.000	1385846.500	Pass
A6 (6")	26035236.000	26360300.000	325064.000	1318015.000	Pass
R72KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-92927656.000	-93022904.000	95248.000	4651145.200	Pass
A2 (50")	-90501024.000	-90617752.000	116728.000	4530887.600	Pass
A3 (29")	-88192472.000	-88292832.000	100360.000	4414641.600	Pass
A4 (17")	-88397088.000	-88515880.000	118792.000	4425794.000	Pass
A5 (10")	-86957704.000	-87076952.000	119248.000	4353847.600	Pass
A6 (6")	-87976216.000	-88080696.000	104480.000	4404034.800	Pass
PASS/FAIL SUMMARY Std Deviation VerificationPass Average VerificationPass Gain Tolerance VerificationPass					

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - 10960494	Reference Calibration Date:	01-Jan-70 00:00:00
Engineer:	WHITLOCK	Calibration Date:	08-Jun-18 16:08:54
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Host Tool Name:	DSNT - 11019641		

	CALIBRATION COEFFICIENT SUMMARY					
	Measurement	Micro Log Normal		Micro Log Lateral		Units
		Measured	Calibrated	Measured	Calibrated	
	Tool Zero	-0.07	-0.07	-0.01	-0.01	ohmm
	Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
	Calibration Point #2	20.00	20.00	20.00	20.00	ohmm
	Internal Reference	19.92	19.92	19.98	19.98	ohmm
	Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
	Tool Zero	-0.11		0.18		V
	Calibration Point #1	18.42		2.03		V
	Calibration Point #2	5354.08		6974.83		V
	Internal Reference	5331.77		6967.38		V

MICRO LOG FIELD CHECK					
Tool Name:	Microlog Pad - 10960494		Reference Calibration Date:	08-Jun-18 16:08:54	
Engineer:	WHITLOCK		Calibration Date:	15-Jul-18 11:58:10	
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1	

	Measurement	Micro Log Normal		Micro Log Lateral	
		Shop	Field	Shop	Field
	Units				
	Tool Zero	-0.07	-0.07	-0.01	-0.00
	Internal Reference	19.92	19.89	19.98	19.96
	Summary				
	Signal	Shop		Difference	
				Tolerance	
	Microlog Normal	19.92	19.89	0.03	+/- 0.80
	Microlog Lateral	19.98	19.96	0.02	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION					
Tool Name:	SDI T Pad - 11213308		Reference Calibration Date:	08-Jun-18 10:39:59	

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:	08-Jun-18 11:01:29
Engineer:	WHITLOCK	Calibration Date:	15-Jul-18 12:01:32
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1

Pad Temperature: 89.3 degF				
DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1579.927	1572.370	-7.557	15.990
Far (B+D+P+L) cps	831.441	831.354	-0.087	15.874
Near Resolution	9.21	9.15	-0.060	0.50
Far Resolution	9.21	9.21	0.000	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-12345678						
Tension Zero	0.00	-----	-----	0.00	-----	lbs
Tension Cal	7830.00	-----	-----	0.00	-----	lbs
CH_HOS-CH_HOS_I						
DH Tension Zero	0.00	-----	-----	0.00	-----	lbs
DH Tension Cal	1808.10	-----	-----	0.00	-----	lbs
GTET-11013113						
Gamma Ray Calibrator	225.9	222.7	-----	3.2	+/- 9.00	api
CSNG-11328129						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	22.7	22.9	-----	-0.2	-----	Channel #
583 KEV Peak Channel #	50.3	50.8	-----	-0.5	-----	Channel #
2614 KEV Peak Channel #	206.4	207.7	-----	-1.3	-----	Channel #
DSNT-11019641						
Snow-Block Porosity	0.0770	0.0754	-----	0.0016	+/- 0.0150	decp
SDLT-10960494						
Pad Extension	3.75	3.79	-----	-0.04	+/-0.10	in
Ring Diameter	8.25	8.25	-----	0.00	+/-0.15	in
ACRt Sonde-11830728						
Mud Cell	0.99	-----	-----	0	-----	ohm-m
Microlog Pad-10960494						
MicroLog Normal	19.92	19.89	-----	0.03	+/-0.80	ohmm
MicroLog Lateral	19.98	19.96	-----	0.02	+/-0.80	ohmm
SDLT Pad-11213308						
Near(B+D+P+L)	1579.927	1572.370	-----	7.557	+/-15.990	cps
Far(B+D+P+L)	831.441	831.354	-----	0.087	+/-15.874	cps



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	5650.00	ft
	SHARED	BHT	Bottom Hole Temperature	128.0	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	SOCI	Source of Casing Information	Parameters	
	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	
	CSNG	CGOK	Process CSNG Data?	Yes	
	CSNG	CENT	Is Tool Centralized?	No	
	CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
	CSNG	BARF	Barite Correction Factor	1.00	
	CSNG	ORDG	Use Fixed Gain	No	
	CSNG	ORDO	Use Fixed Offset	No	
	CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
	CSNG	BHSM	Borehole Size Source Tool	SDLT	
	GEMT Mandrel	GMOK	Compute GEMT Results?	Yes	
	GEMT Mandrel	ETA1	Fit Chemical Element Al	Yes	

GEMT Mandrel	FTAL	Fit Chemical Element Al	Yes	
GEMT Mandrel	FTBA	Fit Chemical Element Ba	No	
GEMT Mandrel	FITC	Fit Chemical Element C	Yes	
GEMT Mandrel	FTCA	Fit Chemical Element Ca	Yes	
GEMT Mandrel	FTCL	Fit Chemical Element Cl	Yes	
GEMT Mandrel	FTFE	Fit Chemical Element Fe	Yes	
GEMT Mandrel	FTGD	Fit Chemical Element Gd	Yes	
GEMT Mandrel	FITH	Fit Chemical Element H	Yes	
GEMT Mandrel	FTK	Fit Chemical Element K	Yes	
GEMT Mandrel	FTMG	Fit Chemical Element Mg	Yes	
GEMT Mandrel	FTMN	Fit Chemical Element Mn	Yes	
GEMT Mandrel	FTNA	Fit Chemical Element Na	No	
GEMT Mandrel	FITO	Fit Chemical Element O	Yes	
GEMT Mandrel	FTS	Fit Chemical Element S	Yes	
GEMT Mandrel	FTSI	Fit Chemical Element Si	Yes	
GEMT Mandrel	FTTI	Fit Chemical Element Ti	Yes	
GEMT Mandrel	KFIT	Potassium constraint flag (No = don't fit,Yes = fit)	Yes	
GEMT Mandrel	UFDF	Use Fix Resolution Degradation Factor	No	
GEMT Mandrel	EBCA	Apply estimated Ca bias correction	No	
GEMT Mandrel	EBSU	Apply estimated Su bias correction	No	
GEMT Mandrel	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	

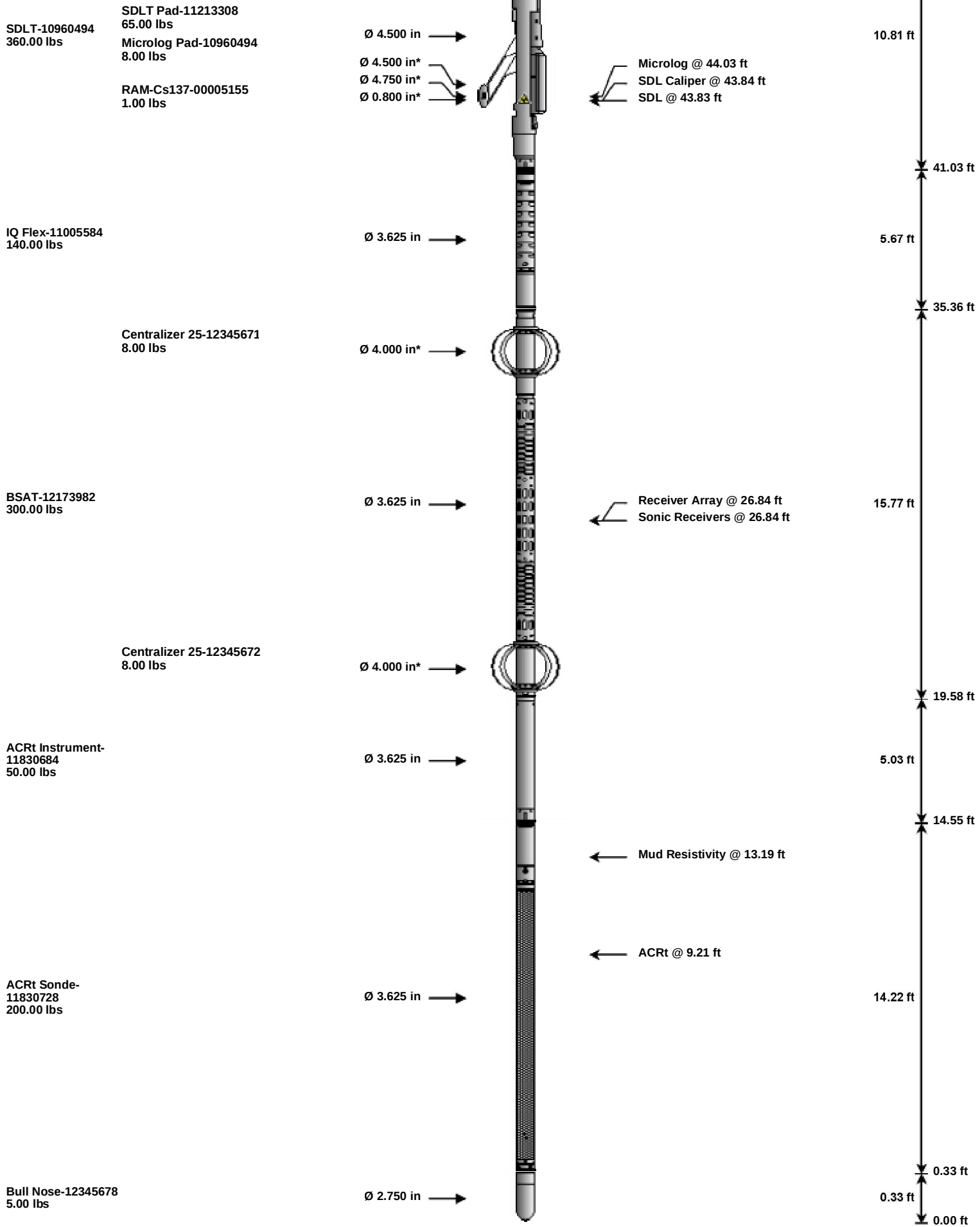
BOTTOM

Data: MERIT_EENU_103\0001 GTET-CSNG-GEM-DSNT-SDLT-FLEX-BSAT-ACRT\IDLE

Date: 17-Jul-18 11:25:06

HALLIBURTON**TOOL STRING DIAGRAM REPORT**

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS_I 37.50 lbs	Weak Point 7000 lbs- CH_HOS_I 0.01 lbs	Ø 2.750 in → Ø 0.010 in* →		← Temperature @ 94.55 ft	3.03 ft	95.58 ft
XOHD-12345678 20.00 lbs		Ø 2.750 in → Ø 3.625 in →			0.95 ft	92.55 ft
SP Sub-11812437 60.00 lbs		Ø 3.625 in →		← SP @ 89.82 ft	3.74 ft	91.60 ft
				← Z-Accelerometer @ 87.41 ft		87.86 ft
GTET-11013113 165.00 lbs		Ø 3.625 in →			8.52 ft	
				← GammaRay @ 81.80 ft		79.34 ft
CSNG-11328129 114.00 lbs	UnivWearRing3.6- 10736164 5.00 lbs	Ø 4.200 in* → Ø 3.625 in →		← CSNG @ 73.71 ft	8.17 ft	
GEMT Instrument- 11519905 80.00 lbs		Ø 3.625 in →			3.37 ft	71.17 ft
						67.80 ft
GEMT Mandrel- 11362710 270.00 lbs		Ø 5.000 in →		← BGO Crystal @ 63.69 ft	6.27 ft	
						61.53 ft
DSNT-11019641 174.00 lbs	DSN Decentralizer- 11660709 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 54.59 ft ← DSN Near @ 53.84 ft	9.69 ft	
						51.84 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_HOS_I	37.50	3.03	92.55	300.00
WP7K	Weak Point 7000 lbs	CH_HOS_I	0.01	0.01	* 93.35	300.00
XOHD	Hostile to Dits Cross Over	12345678	20.00	0.95	91.60	300.00
SP	SP Sub	11812437	60.00	3.74	87.86	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52	79.34	60.00

CSNG	Compensated Spectral Natural Gamma	11328129	114.00	8.17	71.17	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10736164	5.00	0.35 *	75.25	300.00
GEMT	Gamma, Elements and Minerals Tool-Instrument	11519905	80.00	3.37	67.80	15.00
GEMT	Gamma, Elements and Minerals Tool-Mandrel	11362710	270.00	6.27	61.53	15.00
DSNT	Dual Spaced Neutron	11019641	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer	11660709	6.60	5.13 *	55.17	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81	41.03	60.00
SDLP	Density Insite Pad	11213308	65.00	2.55 *	43.24	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	00005155	1.00	0.80 *	43.47	300.00
MICP	Microlog Pad	10960494	8.00	1.00 *	43.53	60.00
IQF	IQ Flex tool	11005584	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool	12173982	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	12345672	8.00	2.08 *	19.75	300.00
OBCEN	Centralizer - 25 in. Overbody	12345671	8.00	2.08 *	32.62	300.00
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	12345678	5.00	0.33	0.00	300.00