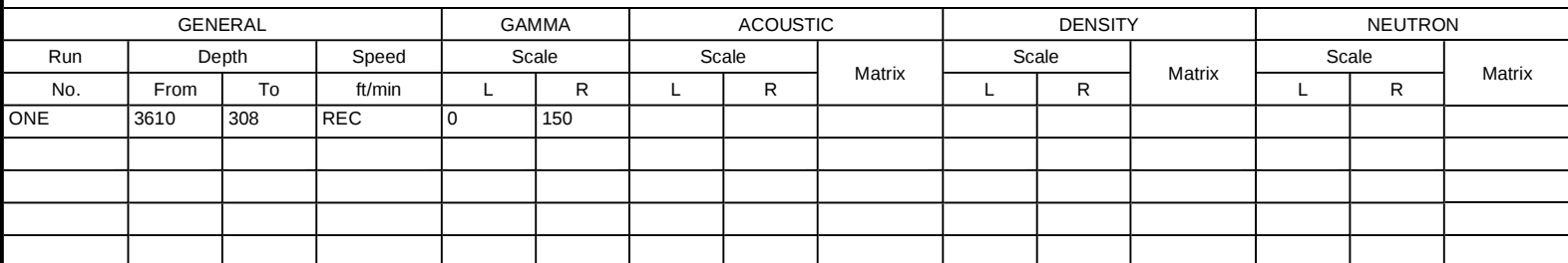
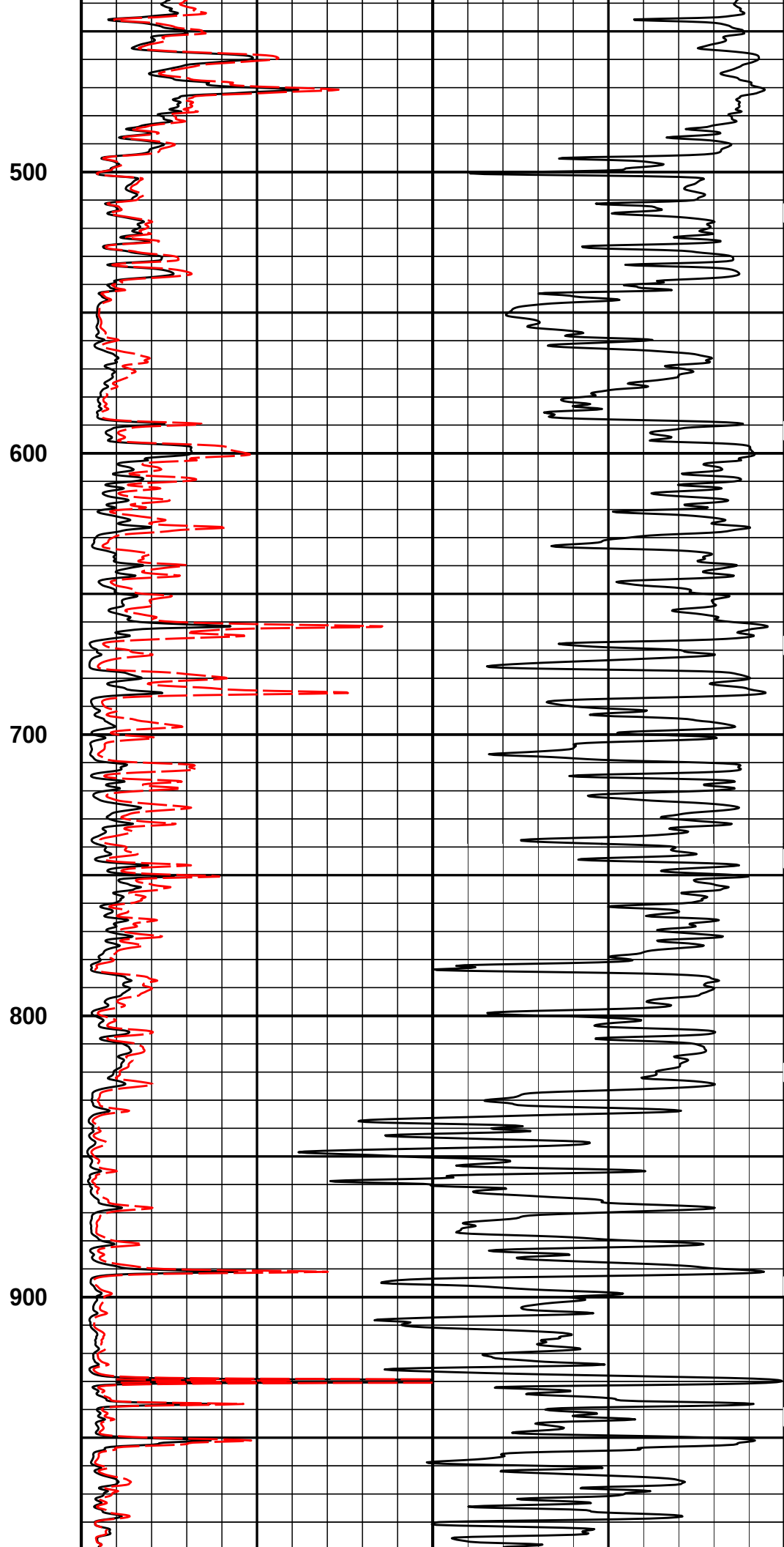
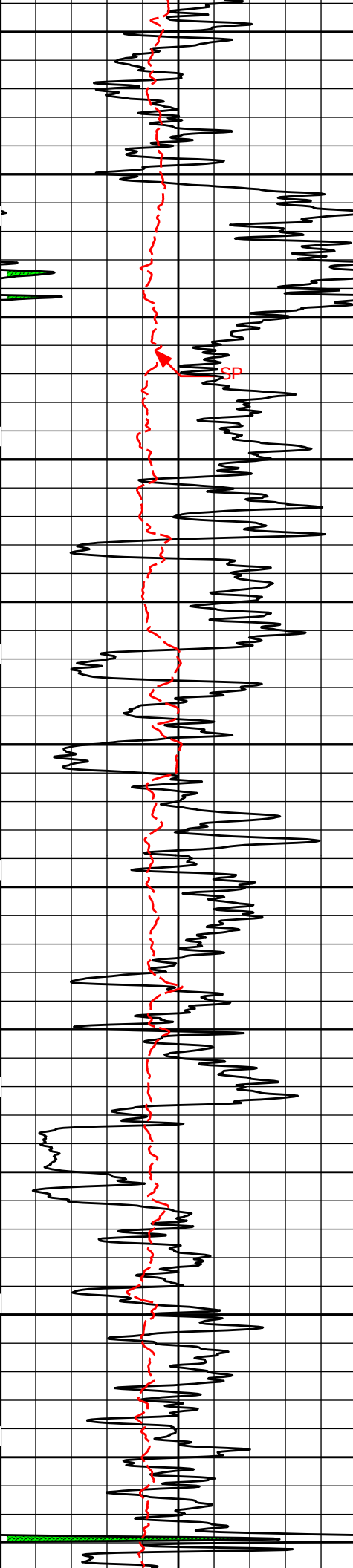
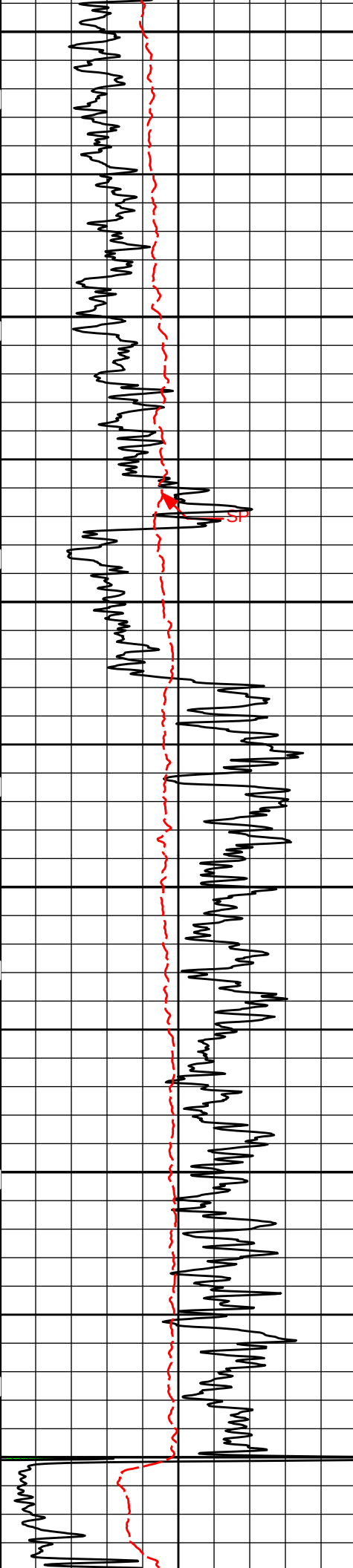


ARRAY COMPENSATED
TRUE RESISTIVITY
LOG

Service Ticket No.: 900395162												API Serial No.: 15-163-24109-00-00				PGM Version: WL INSITE R3.8.4 (Build 5)			
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.	Other									
Rmf @ Meas. Temp.		@		@		ONE	ACRT	N/A	1.5" S.O.	N/A									
Rmc @ Meas. Temp.		@		@			I5059												
Source Rmf	Rmc						S11038385												
Rm @ BHT		@		@															
Rmf @ BHT		@		@															
Rmc @ BHT		@		@															
EQUIPMENT DATA																			
GAMMA			ACOUSTIC			DENSITY			NEUTRON										
Run No.	ONE		Run No.			Run No.			Run No.										
Serial No.	11048627		Serial No.			Serial No.			Serial No.										
Model No.	GTET		Model No.			Model No.			Model No.										
Diameter	3.625"		No. of Cent.			Diameter			Diameter										
Detector Model No.	T-102		Spacing			Log Type			Log Type										
Type	SCINT					Source Type			Source Type										
Length	8"		LSA [Y/N]			Serial No.			Serial No.										
Distance to Source	10'		FWDA [Y/N]			Strength			Strength										
LOGGING DATA																			







1000

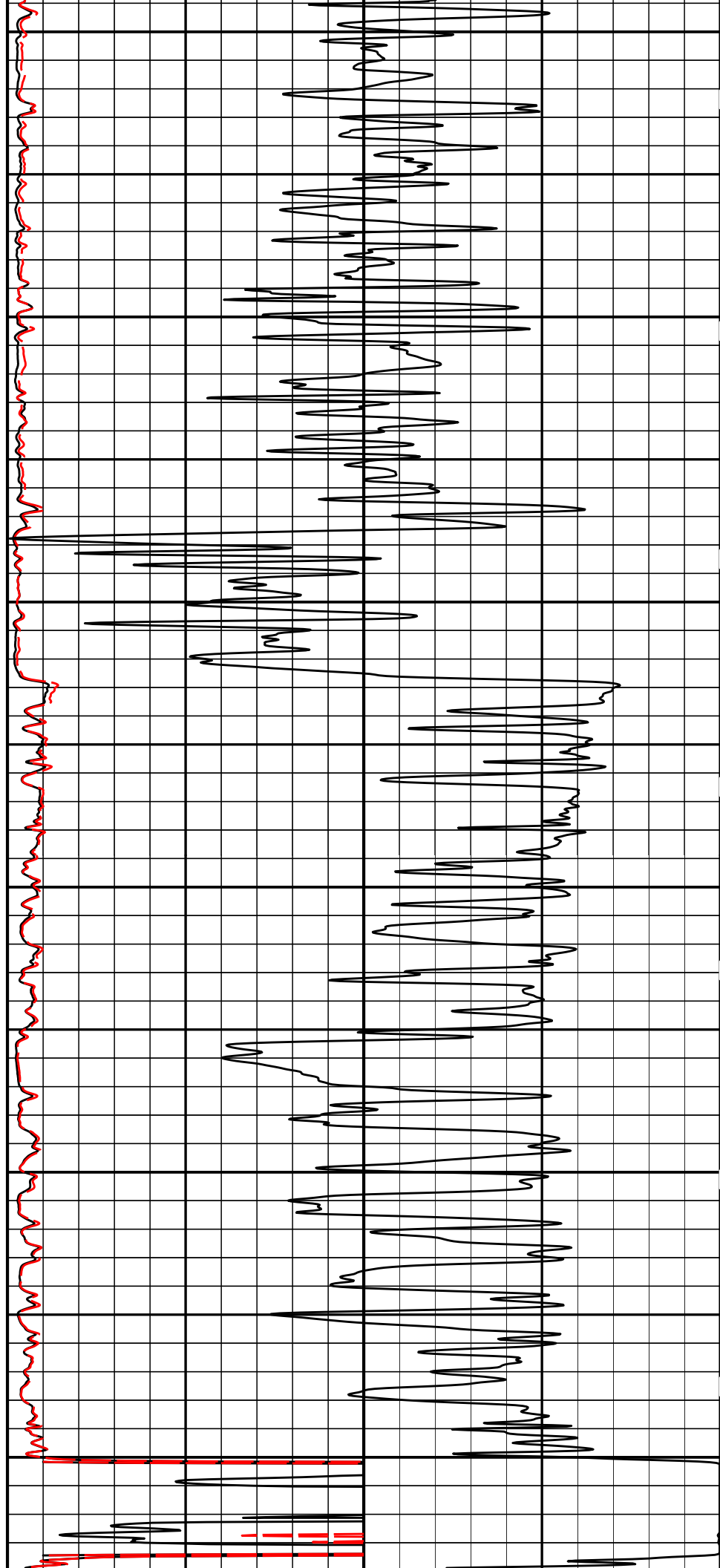
1100

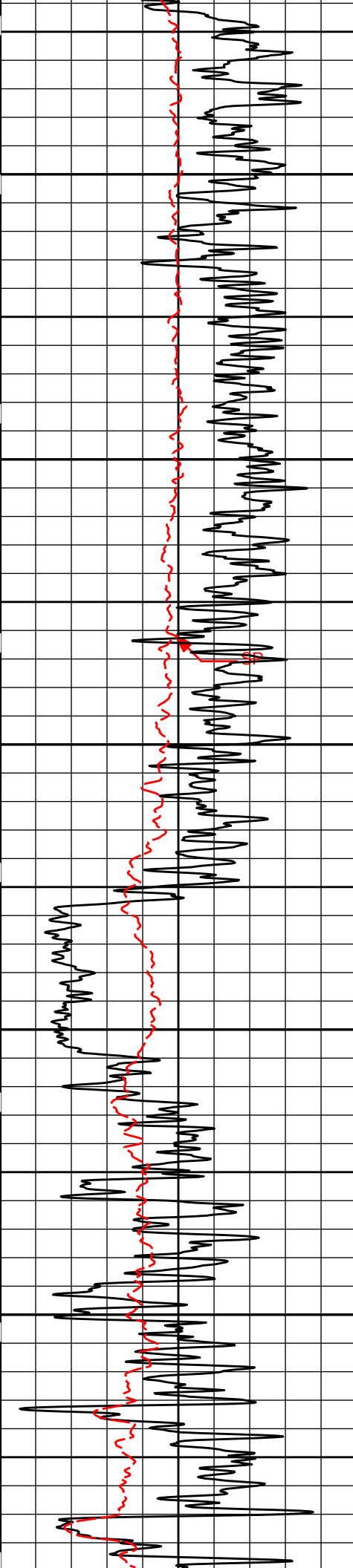
1200

1300

1400

1500





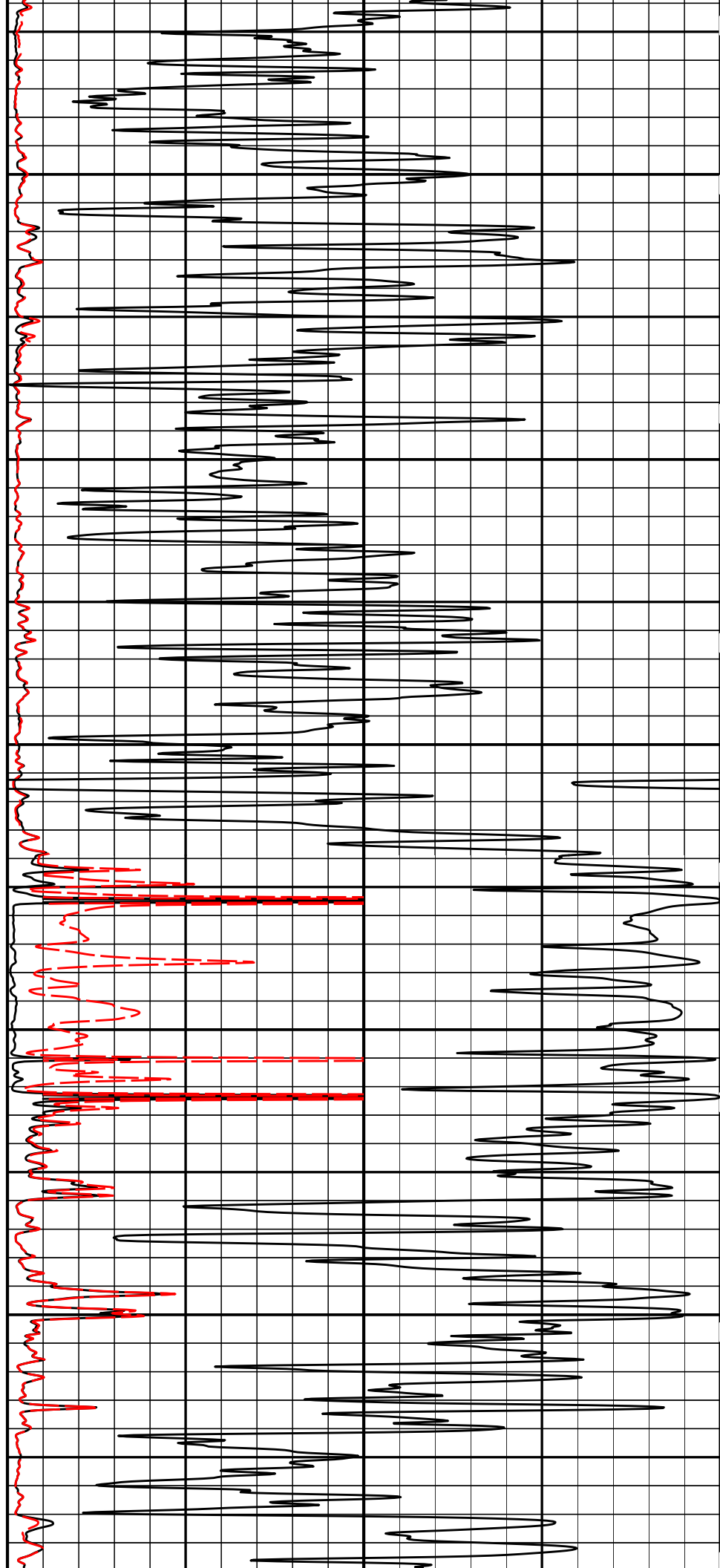
1600

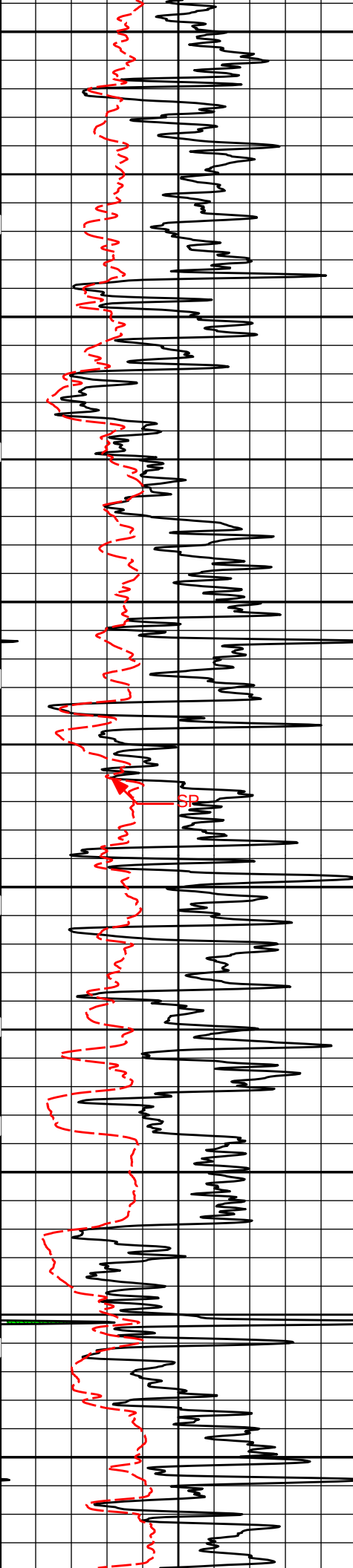
1700

1800

1900

2000





2100

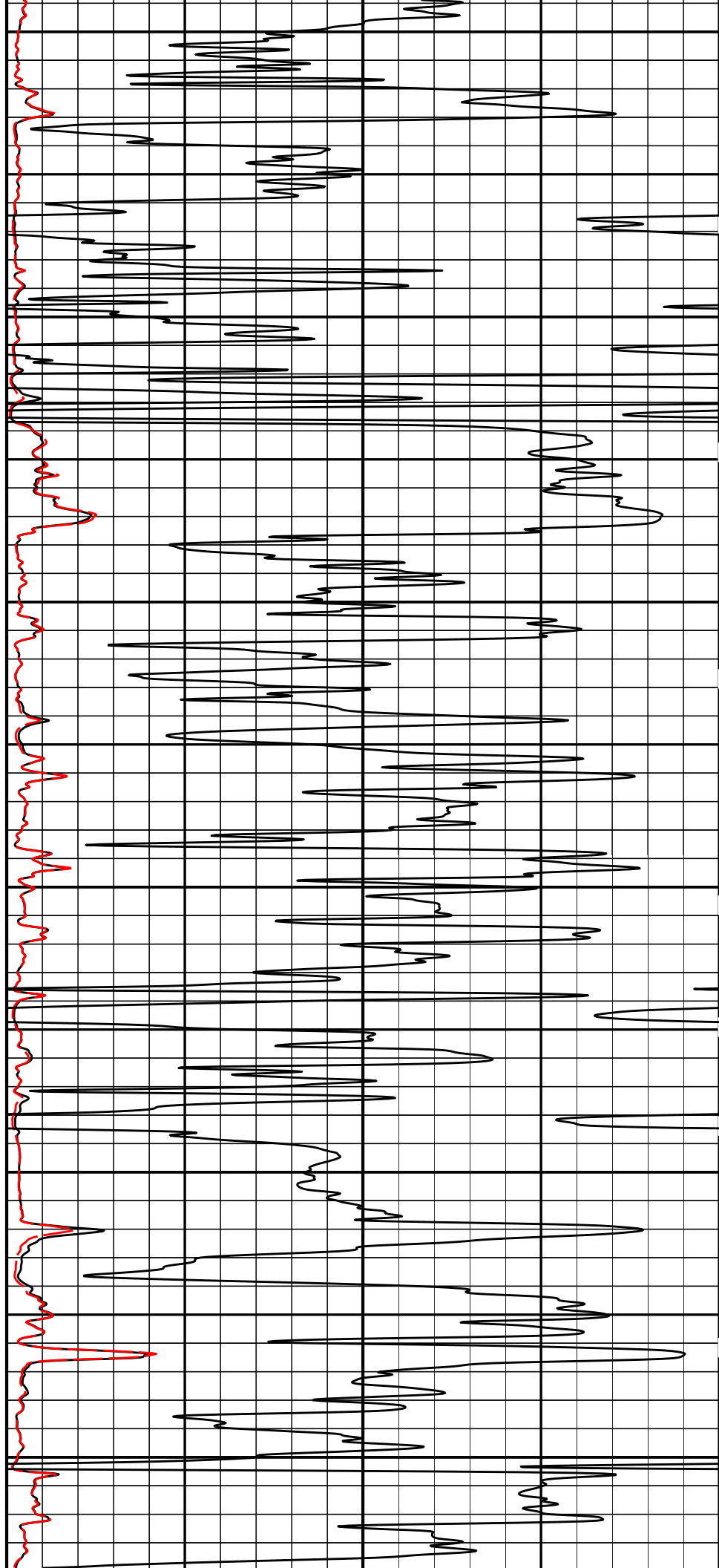
2200

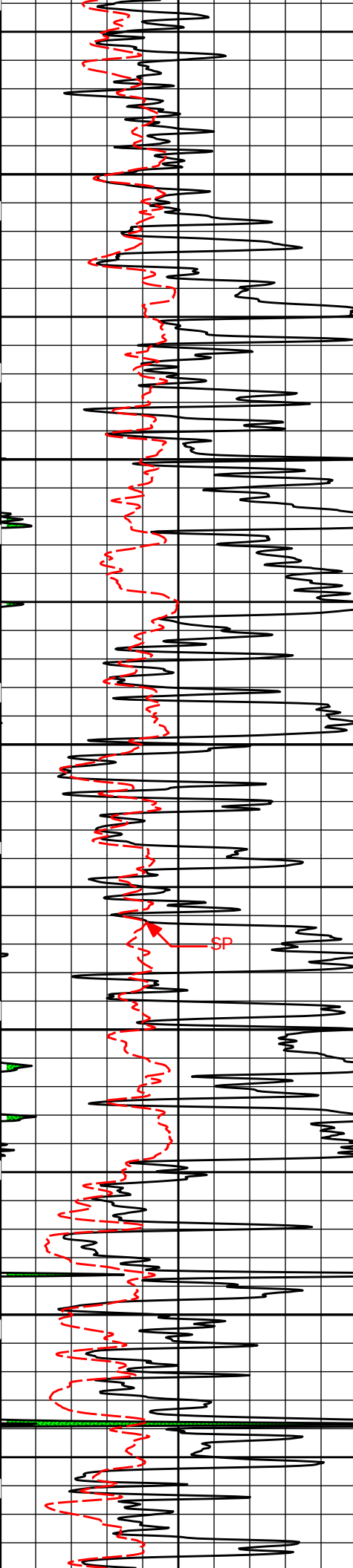
2300

2400

2500

2600





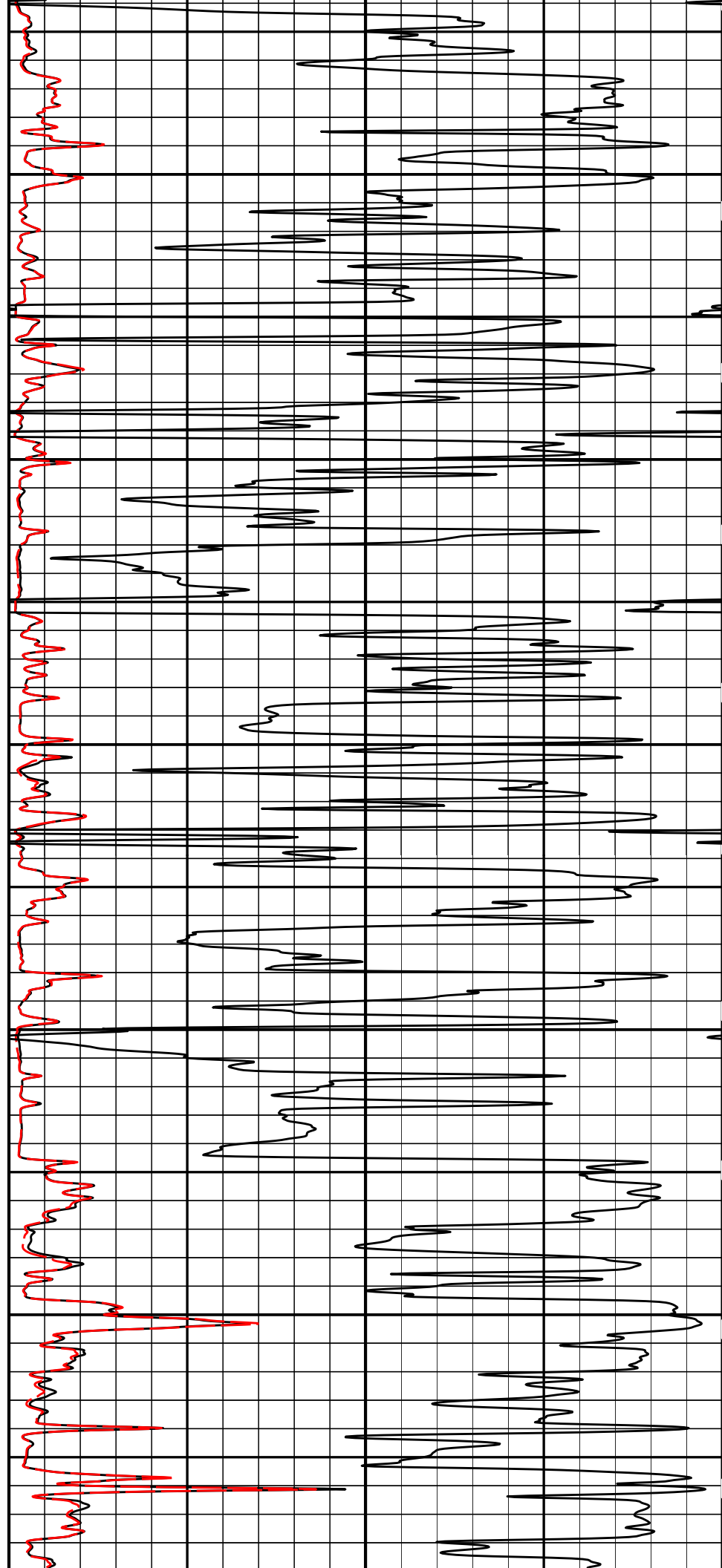
2700

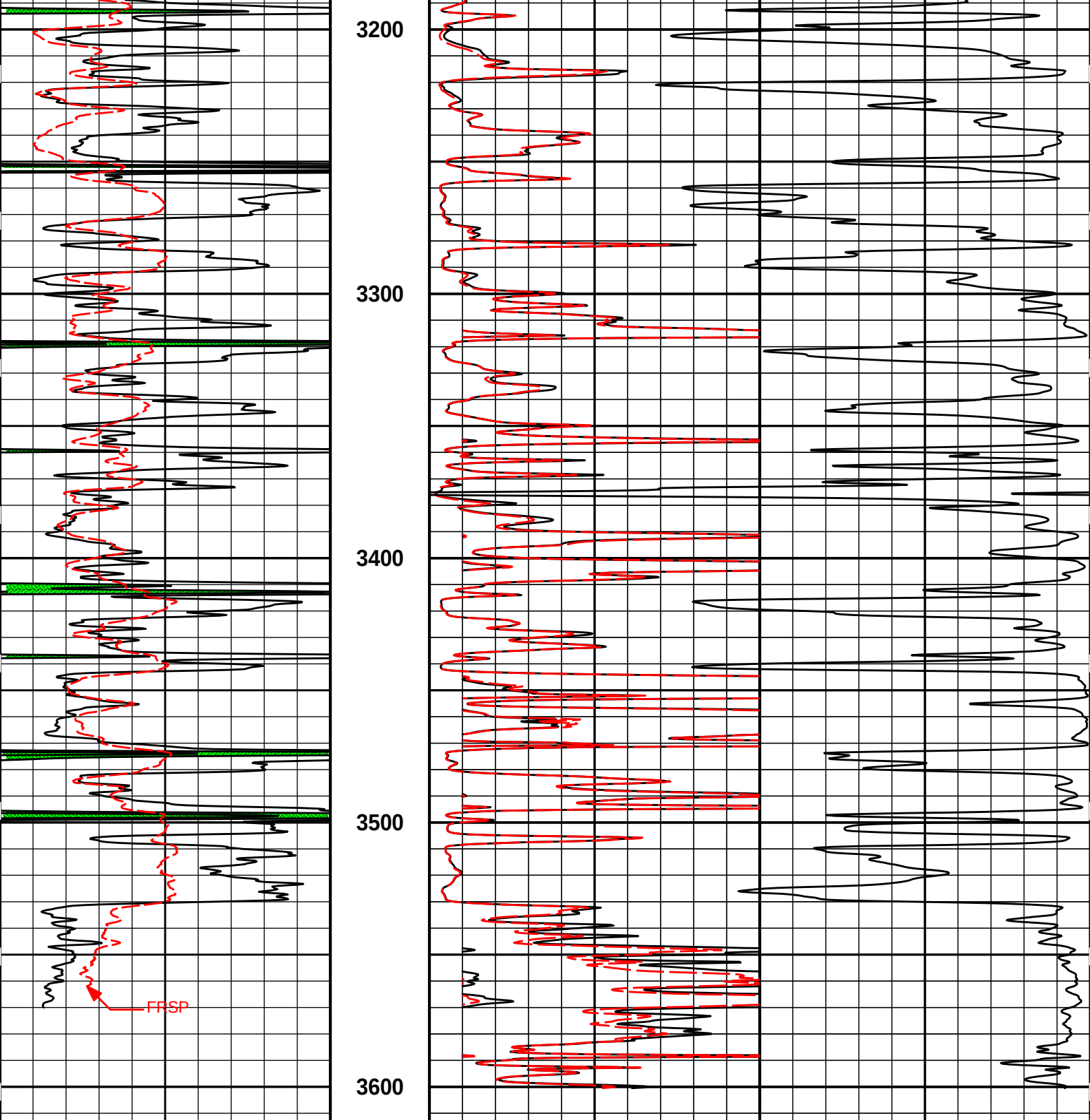
2800

2900

3000

3100





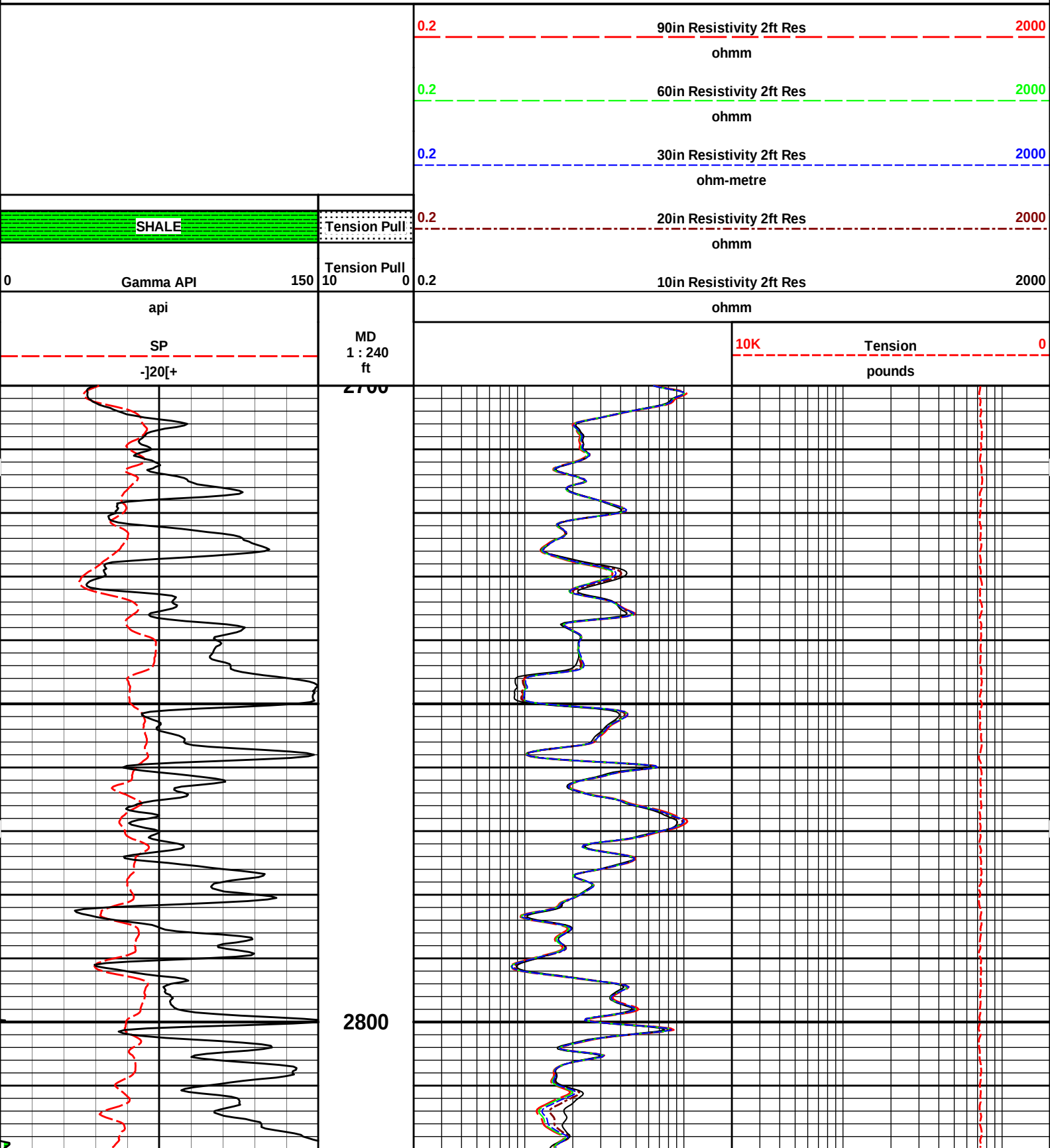
0		Gamma API	150	MD 1 : 600 ft	0		20in Resistivity 2ft Res		50			
					api		ohm-metre					
		SP		0		90in Resistivity 2ft Res		50				
		-]20[+				ohm-metre						
						1000		90in Conductivity 2ft Res		0		
								mmho per metre				

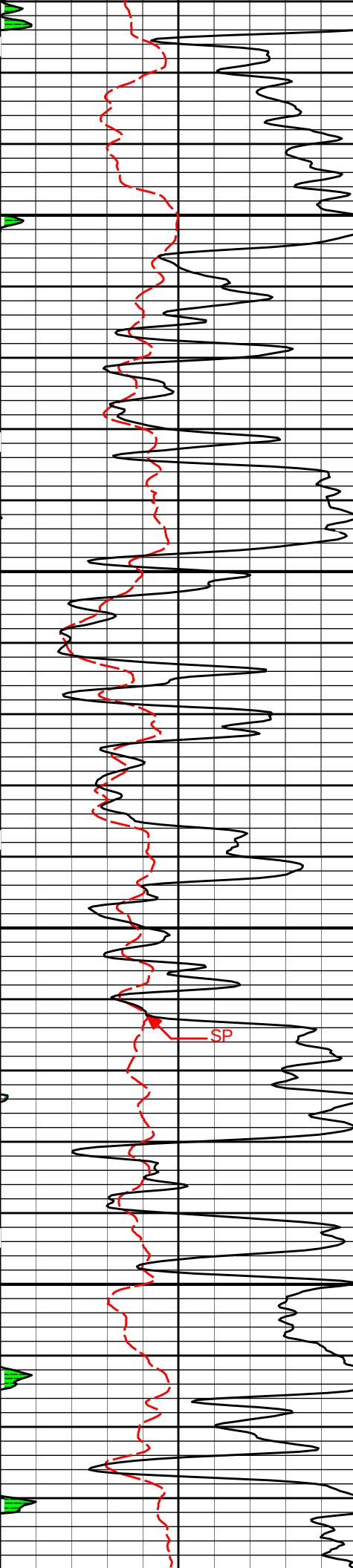
HALLIBURTON

Plot Time: 01-May-13 15:05:39
Plot Range: 290 ft to 3613.67 ft
Data: FRANK_CER_23_42\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-IFRANK_CER_23_42\0001 SP-GTET-DSN-SDL-ACRT-CH\ACRT\ACRT_2_lib

5 INCH MAIN LOG

Plot Time: 01-May-13 15:05:40
Plot Range: 2700 ft to 3613.67 ft
Data: FRANK_CER_23_42\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\\FRANK_CER_23_42\\0001 SP-GTET-DSN-SDL-ACRT-CHI\ACRT\ACRT_5_main.lib

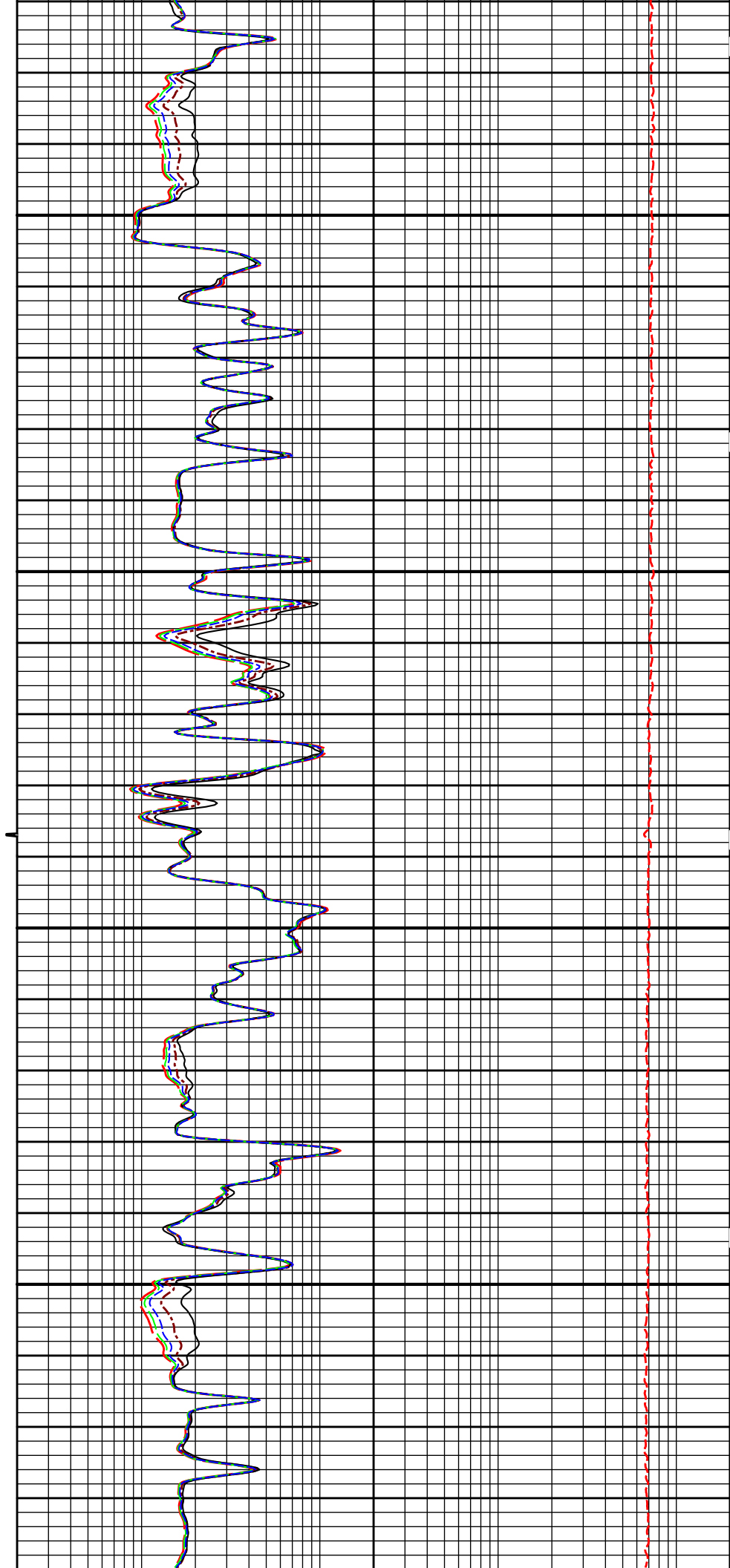


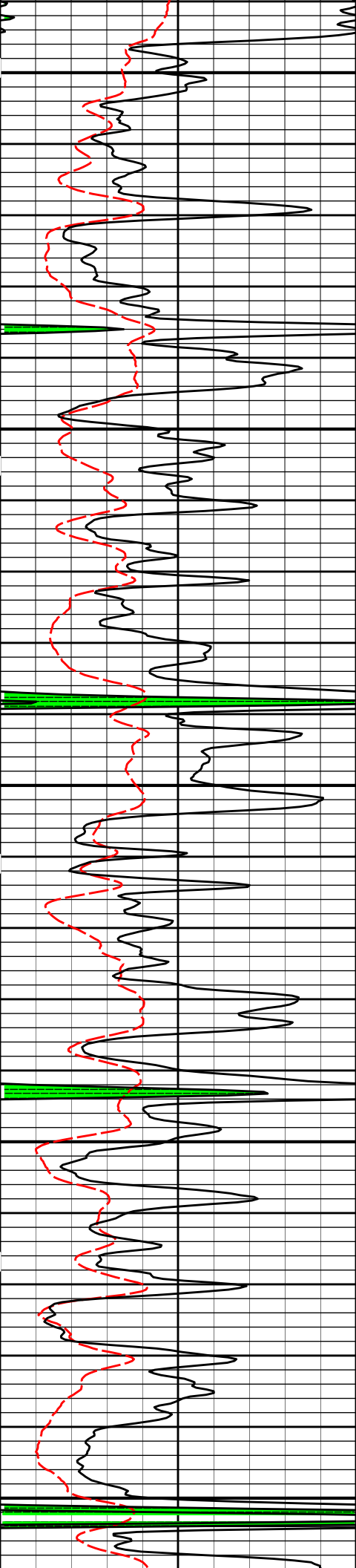


2900

3000

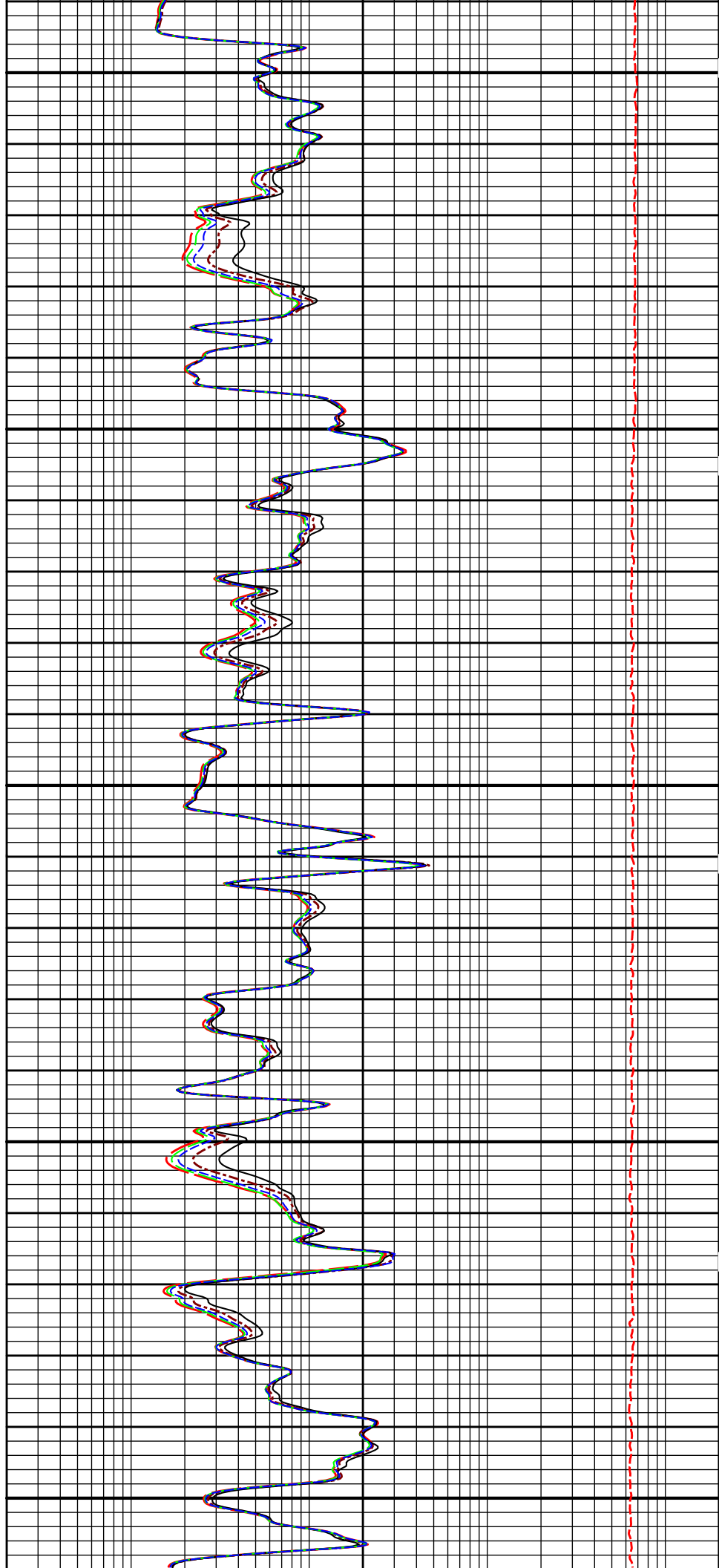
SP

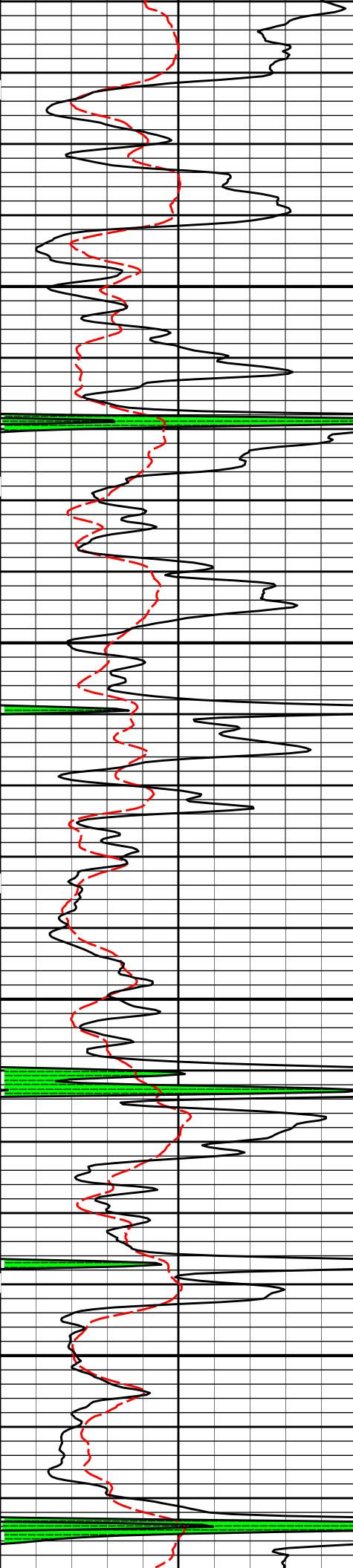




3100

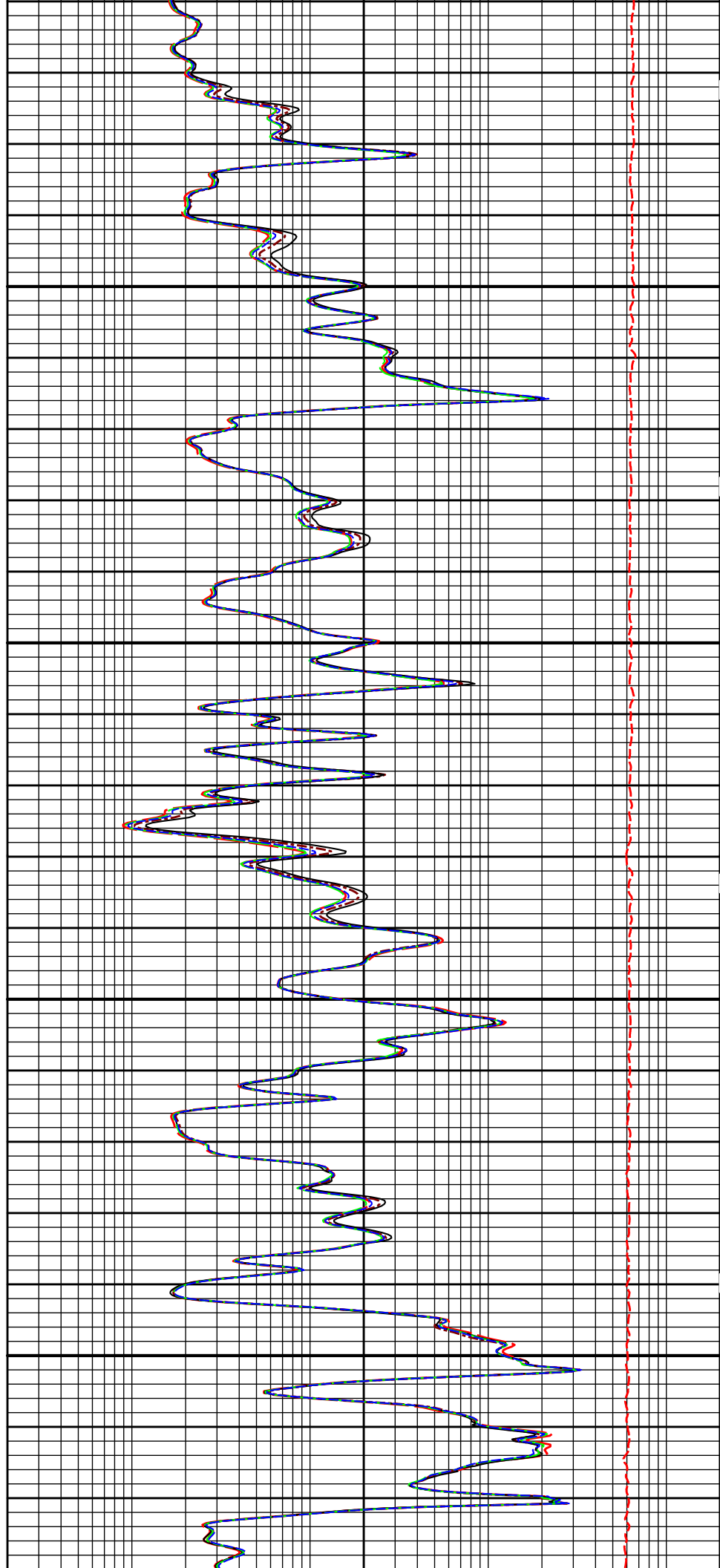
3200

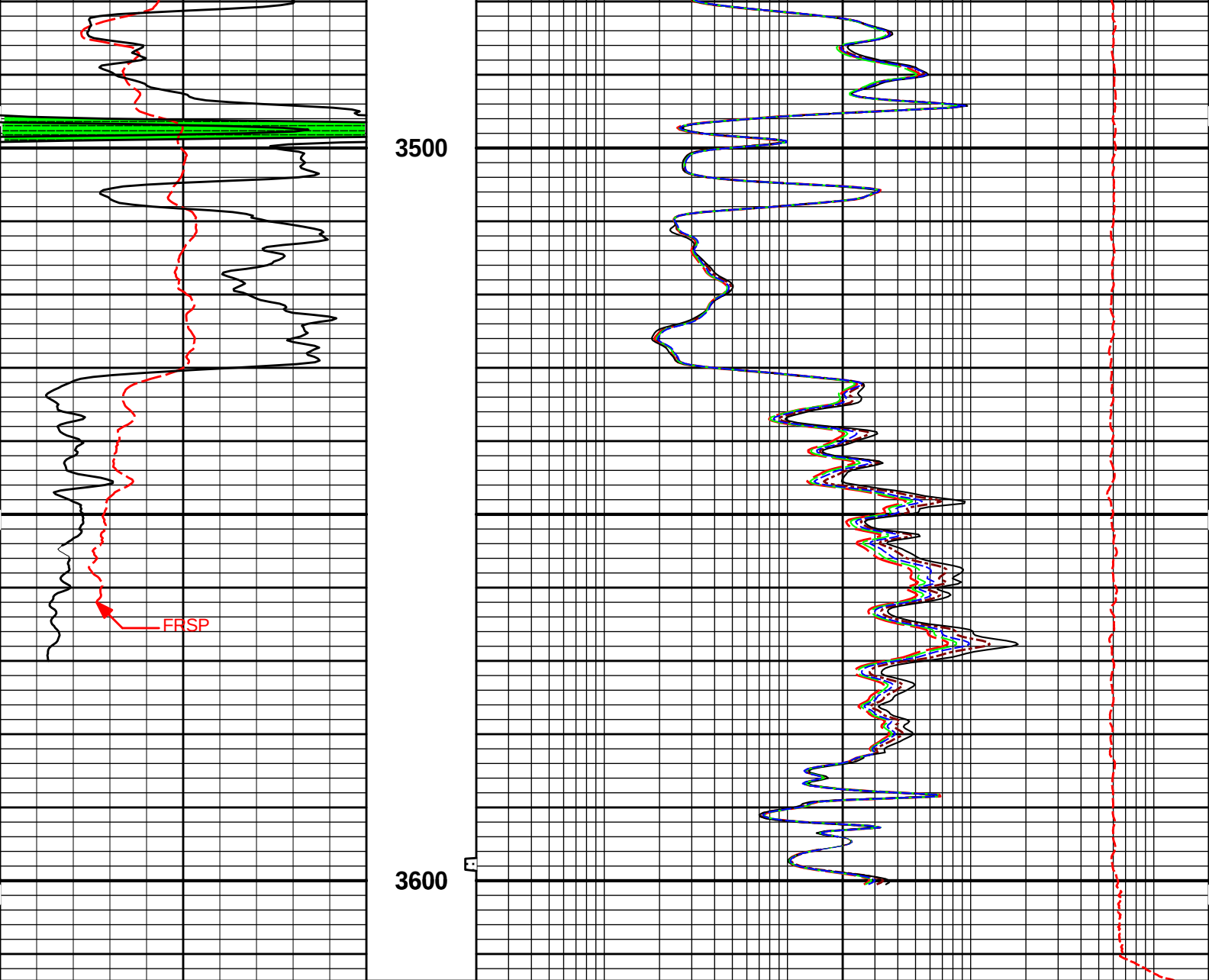




3300

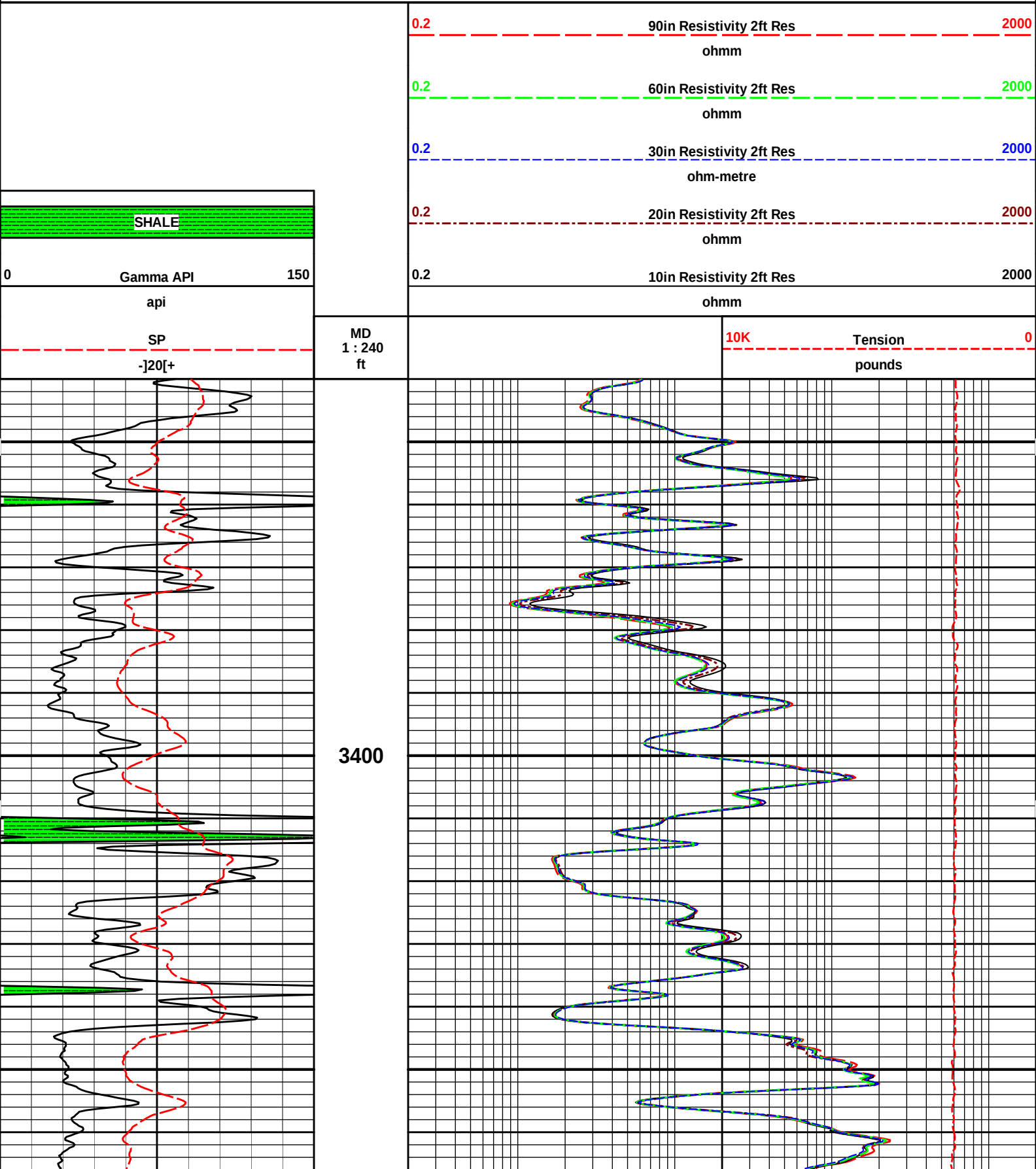
3400

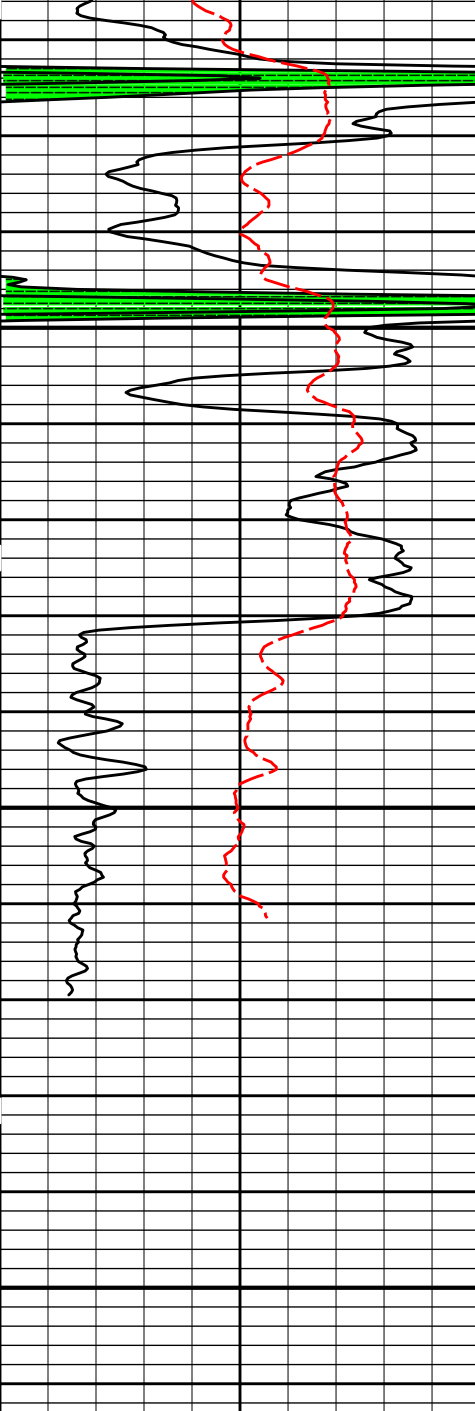




SP -120[+]		MD 1 : 240 ft	10K Tension pounds 0	
0	Gamma API 150		0.2	10in Resistivity 2ft Res 2000
api			ohmm	
SHALE		Tension Pull :	0.2	20in Resistivity 2ft Res 2000
			ohmm	
			0.2	30in Resistivity 2ft Res 2000
			ohm-metre	
			0.2	60in Resistivity 2ft Res 2000
			ohmm	
			0.2	90in Resistivity 2ft Res 2000
			ohmm	

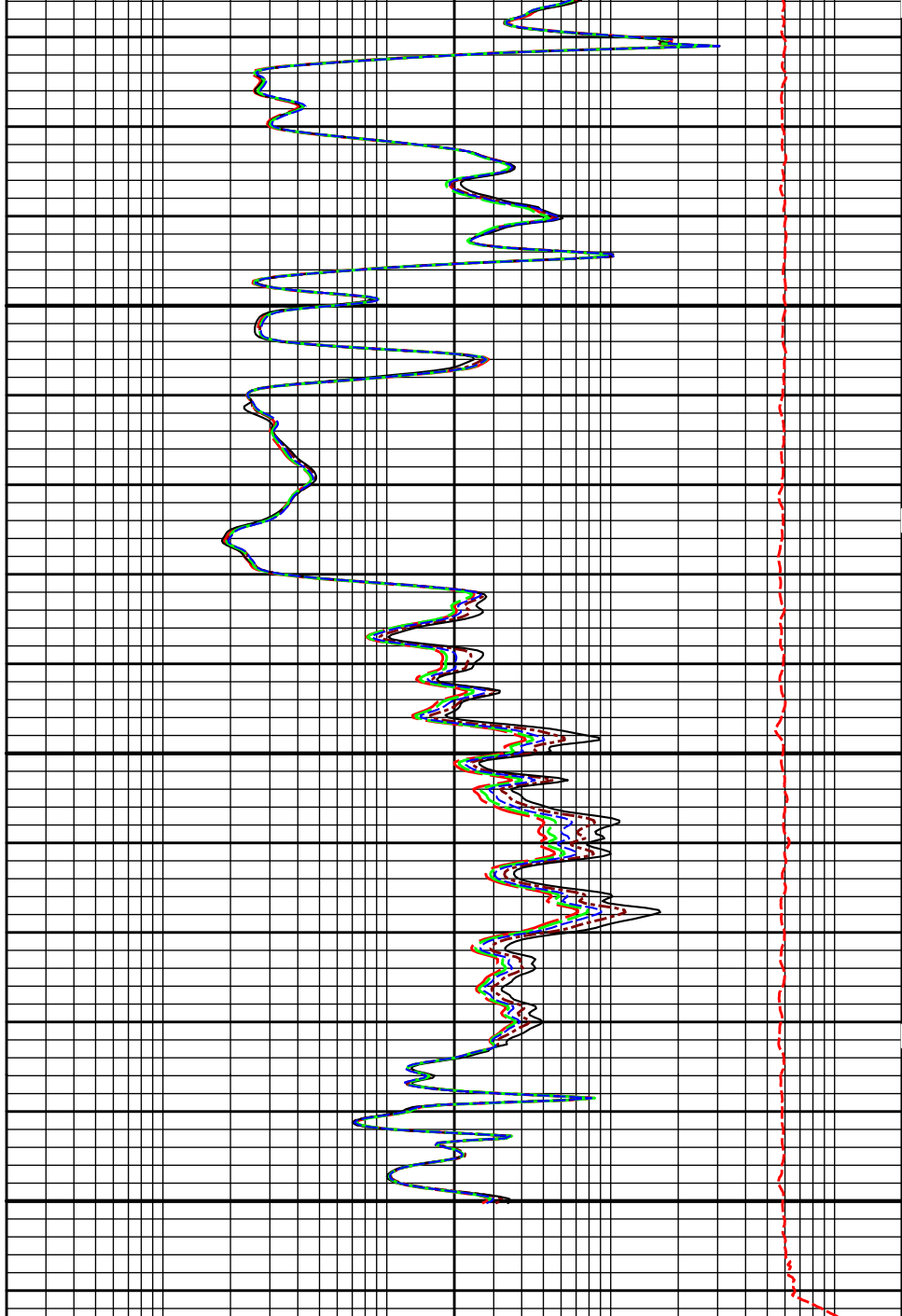
REPEAT SECTION





3500

3600



SP -]20[+		
0	Gamma API	150
api		
SHALE		

MD 1 : 240 ft

10K	Tension	0
pounds		
0.2	10in Resistivity 2ft Res	2000
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	2000
ohmm		

HALLIBURTON

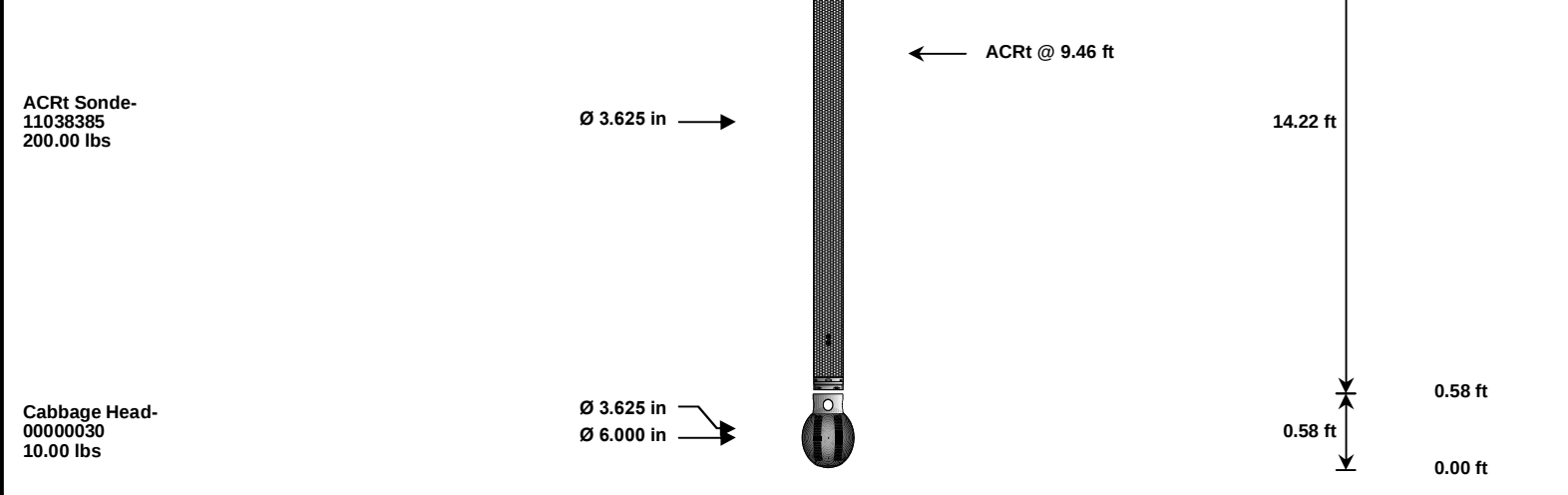
Plot Time: 01-May-13 15:05:51
 Plot Range: 3340 ft to 3613.25 ft
 Data: FRANK_CER_23_42\Well Based\DAQ-0001-002\
 Plot File: \\LOCAL\ERANK_CER_23_42\0001.SP-GTET-DSN-SDI-ACRT-CHI\ACRT_5_repeat.lib

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head- 00000021 30.00 lbs		Ø 3.625 in →			1.92 ft	54.51 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 50.81 ft	3.74 ft	52.59 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		← GammaRay @ 42.79 ft	8.52 ft	48.85 ft
DSNT-11019643 174.00 lbs	DSN Decentralizer- 11005605 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 33.39 ft ← DSN Near @ 32.64 ft	9.69 ft	40.33 ft
SDLT-10950489 360.00 lbs	SDLT Pad-10844781 65.00 lbs Microlog Pad-10950489 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		Microlog @ 22.83 ft SDL Caliper @ 22.65 ft SDL @ 22.64 ft	10.81 ft	30.64 ft
ACRT Instrument- I5059_S8385 50.00 lbs		Ø 3.625 in →			5.03 ft	19.83 ft
Regal Standoff 6_75- 00000044 20.00 lbs		Ø 6.750 in* →		← Mud Resistivity @ 13.44 ft		14.80 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head		00000021	30.00	1.92	52.59	300.00
SP	SP Sub		11441455	60.00	3.74	48.85	300.00
GTET	Gamma Telemetry Tool		11048627	165.00	8.52	40.33	60.00
DSNT	Dual Spaced Neutron		11019643	174.00	9.69	30.64	60.00
DCNT	DSN Decentralizer		11005605	6.60	5.13	*	33.97
SDLT	Spectral Density Tool		10950489	360.00	10.81	19.83	60.00
SDLP	Density Insite Pad		10844781	65.00	2.55	*	22.04
MICP	Microlog Pad		10950489	8.00	1.00	*	22.33
ACRt	Array Compensated True Resistivity Instrument Section		I5059_S8385	50.00	5.03	14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section		11038385	200.00	14.22	0.58	300.00
RSOF	Regal Standoff 6.75in		00000044	20.00	0.52	*	12.30
CBHD	Cabbage Head		00000030	10.00	0.58	0.00	300.00
Total				1,148.60	54.51		
* Not included in Total Length and Length Accumulation.							
Data: FRANK_CER_23_42\0001 SP-GTET-DSN-SDL-ACRT-CH\IDLE							
Date: 01-May-13 00:37:03							

HALLIBURTON			
CALIBRATION REPORT			
NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11048627	Reference Calibration Date:	26-Apr-13 09:25:40
Engineer:	THOMAS HYDE	Calibration Date:	26-Apr-13 09:28:26
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Calibrator Source S/N: TB146			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			
	Measurement	Measured	Calibrated
	Background	55.7	57.0
	Background + Calibrator	319.4	326.6
	Calibrator	263.7	269.6
NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11048627	Reference Calibration Date:	26-Apr-13 09:28:26
Engineer:	THOMAS HYDE	Calibration Date:	01-May-13 00:34:36
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Calibrator Source S/N: TB146			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			

Equivalent Calibrator A1 Reference: 269.6 api									
Field Verification				Shop		Field		Units	
Background				57.0		56.1		api	
Background + Calibrator				326.6		323.5		api	
Calibrator				269.6		267.4		api	
Shop		Field		Difference		Tolerance			
269.6		267.4		2.2		+/- 9.00			
ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION									
Tool Name: ACRt Sonde - 11038385				Reference Calibration Date: 02-Mar-13 10:50:16					
Engineer: J. BOLLUM				Calibration Date: 20-Apr-13 10:48:22					
Software Version: WL INSITE R3.8.4 (Build 5)				Calibration Version: 1					
Host Tool Name: ACRt Instrument - I5059_S8385									
TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.03	1.05	0.95	1.03	1.05	0.95	1.03	1.05
A2 (50")	0.95	1.02	1.05	0.95	1.03	1.05	0.95	1.03	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.01	1.05	0.95	1.01	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.02	1.05	0.95	1.02	1.05
TYPICAL SONDE OFFSET RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.00	2	-6	-5.16	-2	-8	-4.77	-2
A2 (50")	-7	-2.14	0	-7	-3.63	0	-7	-4.67	0
A3 (29")	-27	-15.08	-9	-9	-4.62	-3	-7	-2.26	-1
A4 (17")	-180	-103.96	-60	-45	-32.83	-15	-39	-26.01	-13
A5 (10")	N/A	N/A	N/A	-150	-82.51	-50	-80	-41.16	-10
A6 (6")	N/A	N/A	N/A	175	349.92	525	90	174.21	270
TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION				
Signal	Lower	R		Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)	
12K	0.6	0.85		1.3	Mud Cell	0.95	1.00	1.05	
36K	1.0	1.34		2.0					
72K	1.0	1.60		2.0					
PASS/FAIL SUMMARY									
GAIN RANGE CHK					PASS				
SONDE OFFSET RANGE CHK					PASS				
Tx CURRENT GAIN					PASS				
Rmud VERIFICATION					PASS				
TOOL OK TO LOG									
CALIBRATION SUMMARY									
Sensor	Shop	Field	Post	Difference	Tolerance	Units			

GTET-11048627						
Gamma Ray Calibrator	269.6	267.4	-----	2.2	+/- 9.00	api
ACRt Sonde-11038385						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m
Data: FRANK_CER_23_42I0001 SP-GTET-DSN-SDL-ACRT-CHIDLE						
Date: 01-May-13 10:59:58						
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	9.000	ppg	
	SHARED	WAGT	Weighting Agent	Natural		
	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	ST	Surface Temperature	75.0	degF	
	SHARED	TD	Total Well Depth	3609.00	ft	
	SHARED	BHT	Bottom Hole Temperature	200.0	degF	
	SHARED	SVTM	Navigation and Survey Master Tool	NONE		
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET		
	SHARED	TEMM	Temperature Master Tool	NONE		
	SHARED	BHSM	Borehole Size Master Tool	NONE		
	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		
	GTET	GROK	Process Gamma Ray?	Yes		
	GTET	GRSO	Gamma Tool Standoff	0.000	in	
	GTET	GEOK	Process Gamma Ray EVR?	No		
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered		
	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	DNTP	Temperature Correction Type	None		
	DSNT	DPRS	DSN Pressure Correction Type	None		
	DSNT	SHCO	View More Correction Options	No		

ENTM	DSN Tool Temperature EVR	32.64	NO	
SDLT				
TPUL	Tension Pull	22.65	NO	
PCAL	Pad Caliper	22.65	TRI	0.250
ACAL	Arm Caliper	22.65	TRI	0.250
ACRt Sonde				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	

TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	

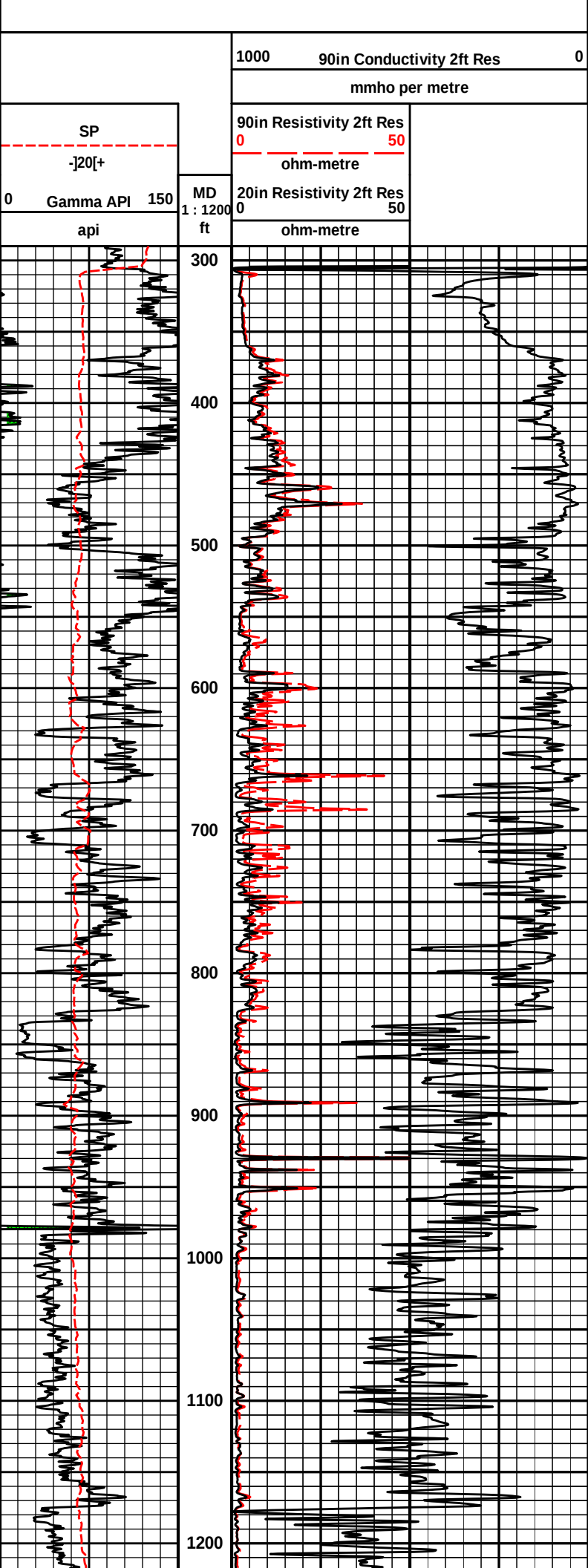
Microlog Pad				
TPUL	Tension Pull	22.83	NO	
MINV	Microlog Lateral	22.83	BLK	0.750
MNOR	Microlog Normal	22.83	BLK	0.750

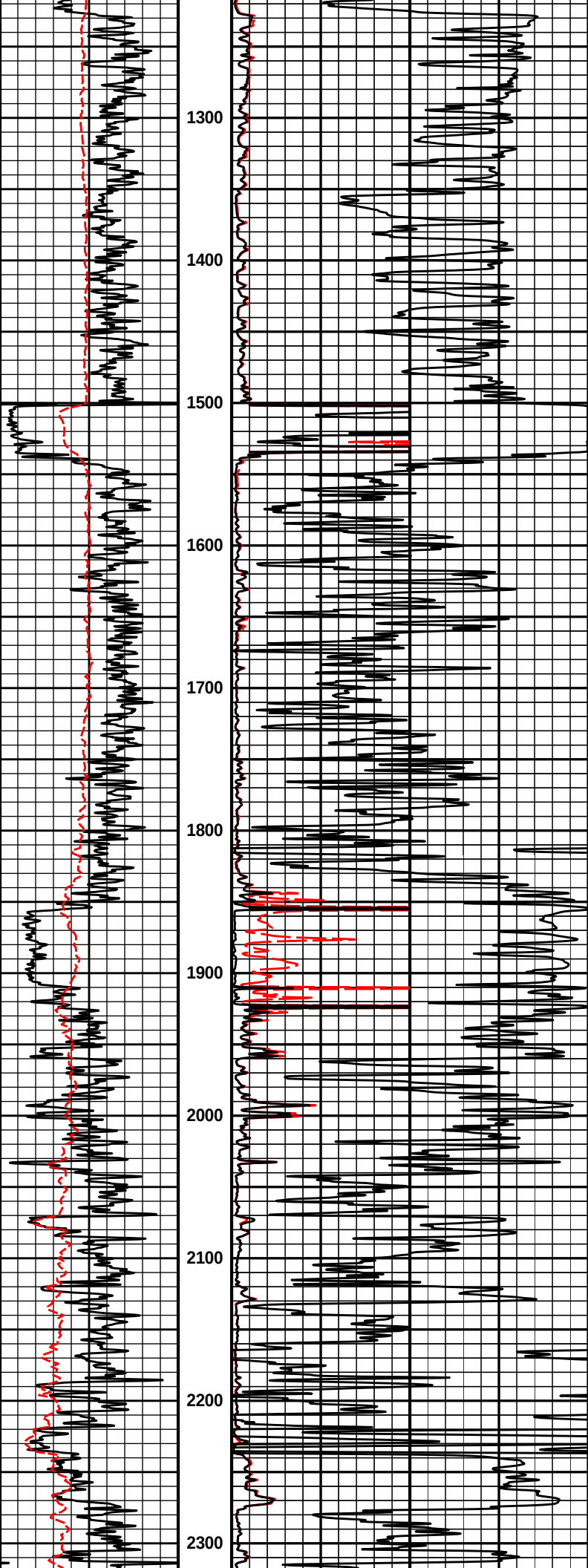
SDLT Pad				
TPUL	Tension Pull	22.64	NO	
NAB	Near Above	22.46	BLK	0.920
NHI	Near Cesium High	22.46	BLK	0.920
NLO	Near Cesium Low	22.46	BLK	0.920
NVA	Near Valley	22.46	BLK	0.920
NBA	Near Barite	22.46	BLK	0.920
NDE	Near Density	22.46	BLK	0.920
NPK	Near Peak	22.46	BLK	0.920
NLI	Near Lithology	22.46	BLK	0.920
NBAU	Near Barite Unfiltered	22.46	BLK	0.250
NLIU	Near Lithology Unfiltered	22.46	BLK	0.250
FAB	Far Above	22.81	BLK	0.250
FHI	Far Cesium High	22.81	BLK	0.250
FLO	Far Cesium Low	22.81	BLK	0.250
FVA	Far Valley	22.81	BLK	0.250
FBA	Far Barite	22.81	BLK	0.250
FDE	Far Density	22.81	BLK	0.250
FPK	Far Peak	22.81	BLK	0.250
FLI	Far Lithology	22.81	BLK	0.250
PTMP	Pad Temperature	22.65	BLK	0.920
NHV	Near Detector High Voltage	22.04	NO	
FHV	Far Detector High Voltage	22.04	NO	
ITMP	Instrument Temperature	22.04	NO	
DDHV	Detector High Voltage	22.04	NO	

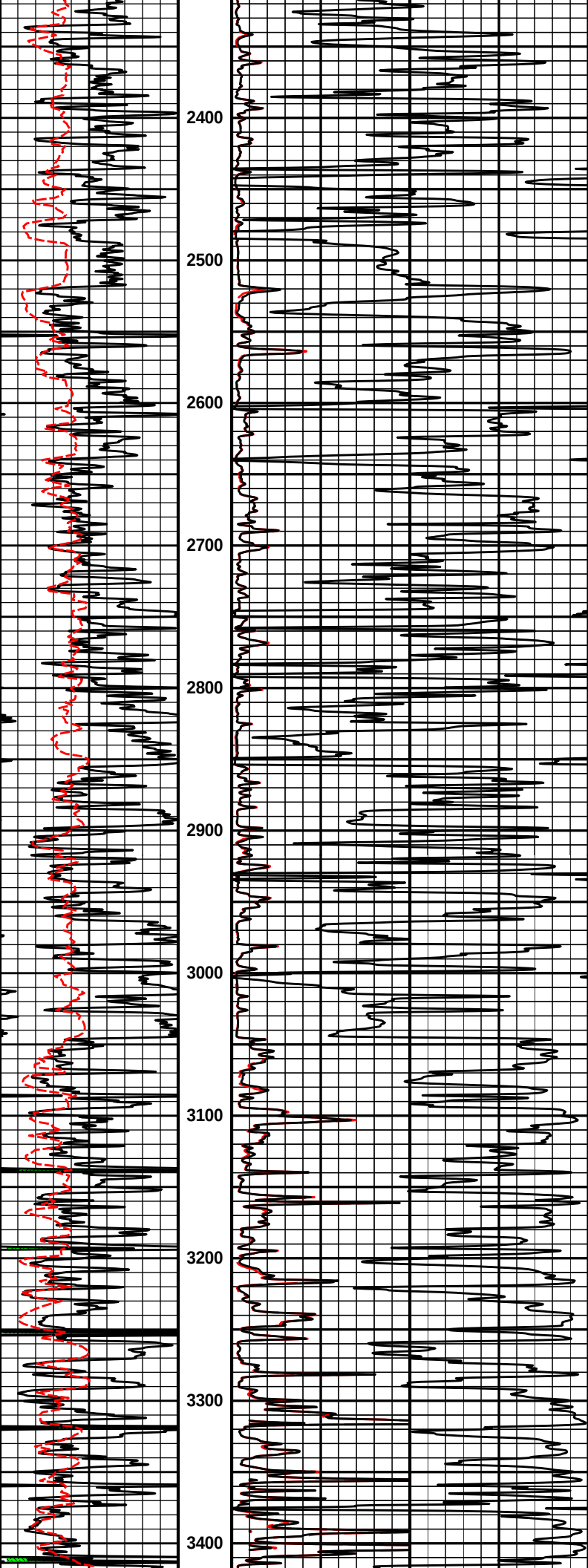
Data: FRANK_CER_23_42I0001 SP-GTET-DSN-SDL-ACRT-CHIDLE Date: 01-May-13 11:01:24

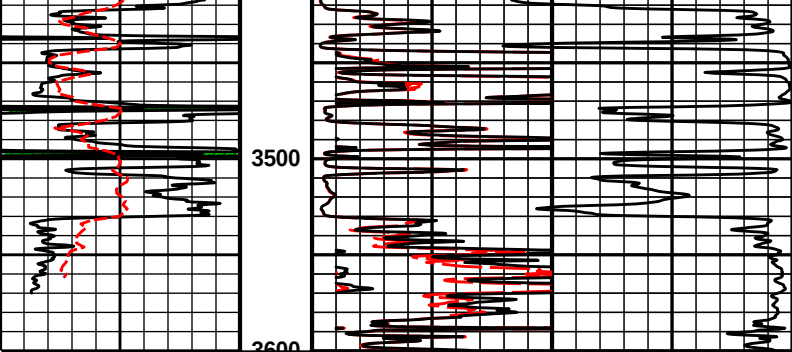
COMPANY	CAERUS OIL & GAS		
WELL	FRANK CERROW 23-42A		
FIELD	JELENIK		
COUNTY	ROOKS	STATE	KANSAS
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY LOG	

HALLIBURTON Plot Time: 01-May-13 15:05:52 Plot Range: 290 ft to 3600.5 ft Data: FRANK_CER_23_42IWell Based\DAQ-0001-003\ Plot File: \\LOCAL-IFRANK_CER_23_42I0001 SP-GTET-DSN-SDL-ACRT-CHI...\\ACRT_1.lib 1 INCH MAIN LOG
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0	Gamma API	150	MD	20in Resistivity 2ft Res	
	api		1 : 1200	0	50
	SP		ft	ohm-metre	
	-]20[+			90in Resistivity 2ft Res	
				0	50
				ohm-metre	
				1000	90in Conductivity 2ft Res
					0
					mmho per metre

HALLIBURTON

Plot Time: 01-May-13 15:05:53
Plot Range: 290 ft to 3600.5 ft
Data: FRANK_CER_23_42\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\\FRANK_CER_23_42\\0001 SP-GTET-DSN-SDL-ACRT-CHI...\\ACRT_1_lib

1 INCH MAIN LOG