56 ARM CALIPER LOG

Company	SOUTHERN CALIFORNIA GAS COMPANY
Well	FERNANDO FEE 35A
Field	ALISO CANYON
County	LOS ANGELES
State	CALIFORNIA

Location: API # : 04-037-21457

SEC 34 TWP 3N RGE 16W

Other Services
HRVRT
CIS-GYRO

Permanent Datum	GL	Elevation	1674
Log Measured From	KB - 15 FT AGL		
Drilling Measured From	KB		

Elevation
K.B. 1689'
D.F.
G.L. 1674'

Date	13 AUG 2016
Run Number	1
Depth Driller	7232'
Depth Logger	
Bottom Logged Interval	7010'
Top Log Interval	SURFACE
Open Hole Size	
Type Fluid	KCL
Density / Viscosity	
Max. Recorded Temp.	156°
Estimated Cement Top	
Time Well Ready	0700
Time Logger on Bottom	0927
Equipment Number	4353
Location	SHAFTER
Recorded By	SID GORNTO
Witnessed By	JEFF SANDOVAL

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
	13 3/8"	54.5lb	SURFACE	790'
	8.625"	36lb	SURFACE	7039'
	6.625"	24lb	6990'	7223'

Company SOUTHERN CALIFORNIA GAS COMPANY
Well FERNANDO FEE 35A
Field ALISO CANYON
County LOS ANGELES
State CALIFORNIA

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

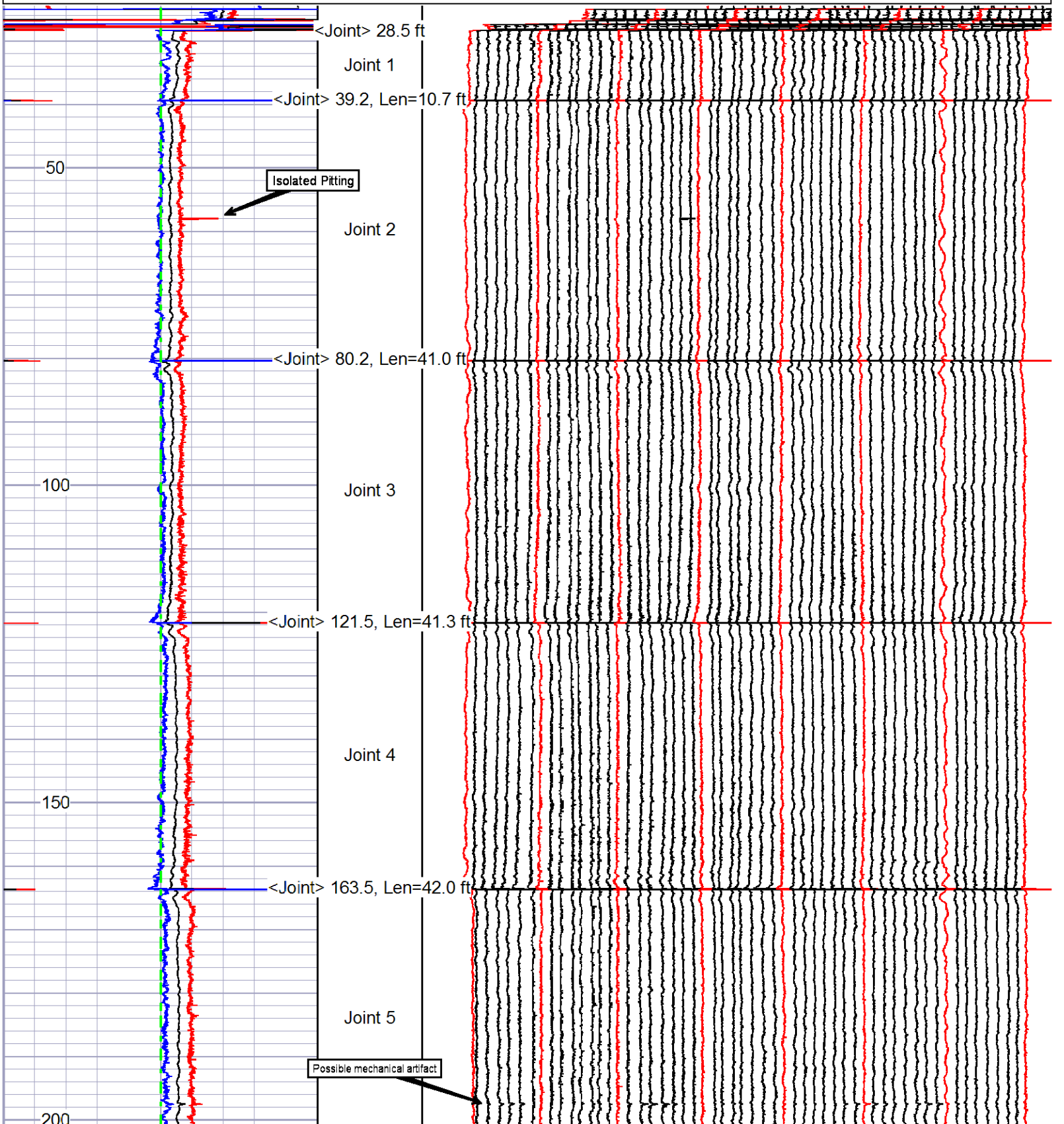
Comments

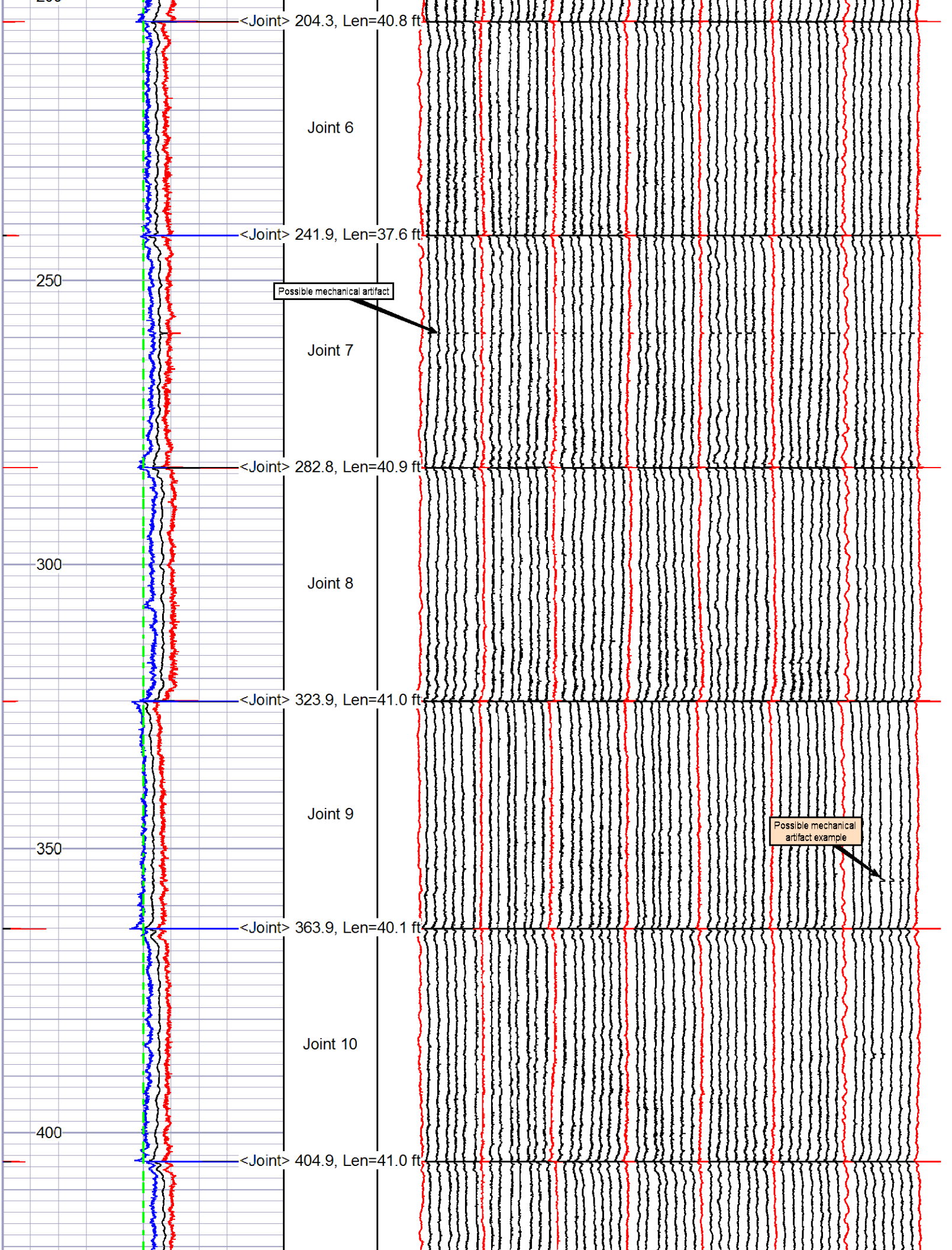
LOG MEASURED FROM KB
TOOLSTRING RUN WITH GYRODATA GYRO CENTRALIZED ON BOTTOM

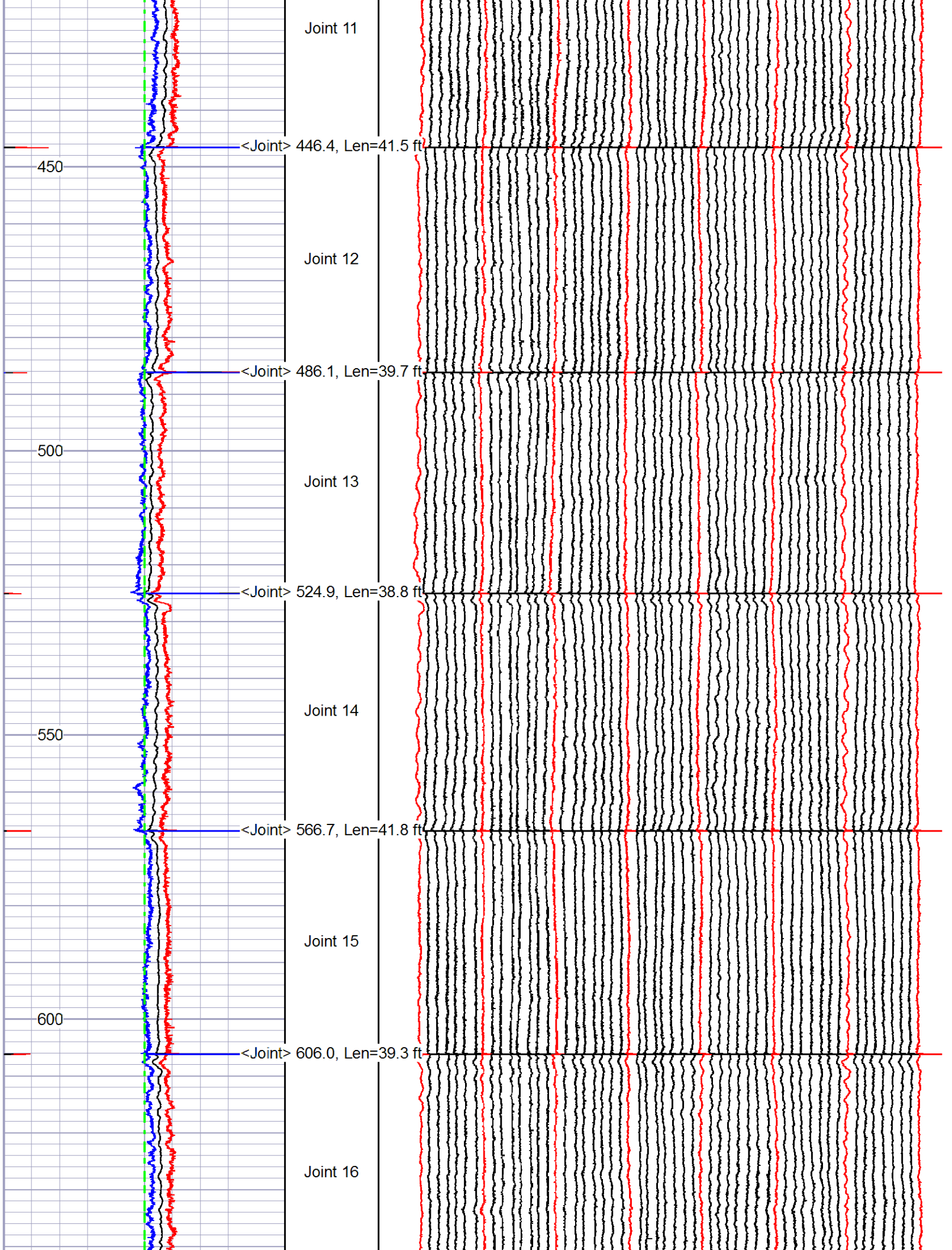
Main Section

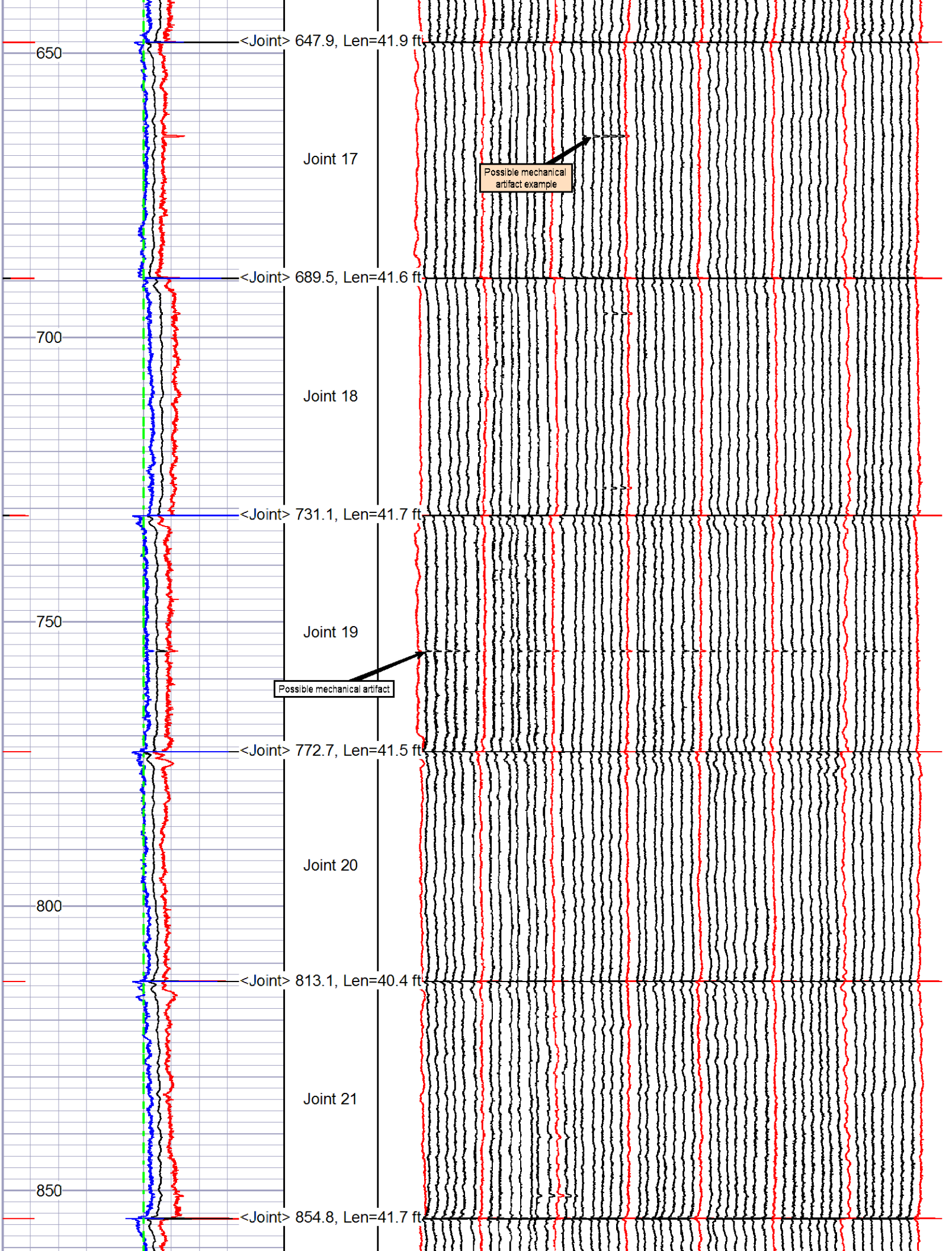
Database File	c:\epidote\fernando fee 35a\main.db
Dataset Pathname	main
Presentation Format	56f_32lb_hw
Dataset Creation	Mon Aug 22 13:34:58 2016
Charted by	Depth in Feet scaled 1:240

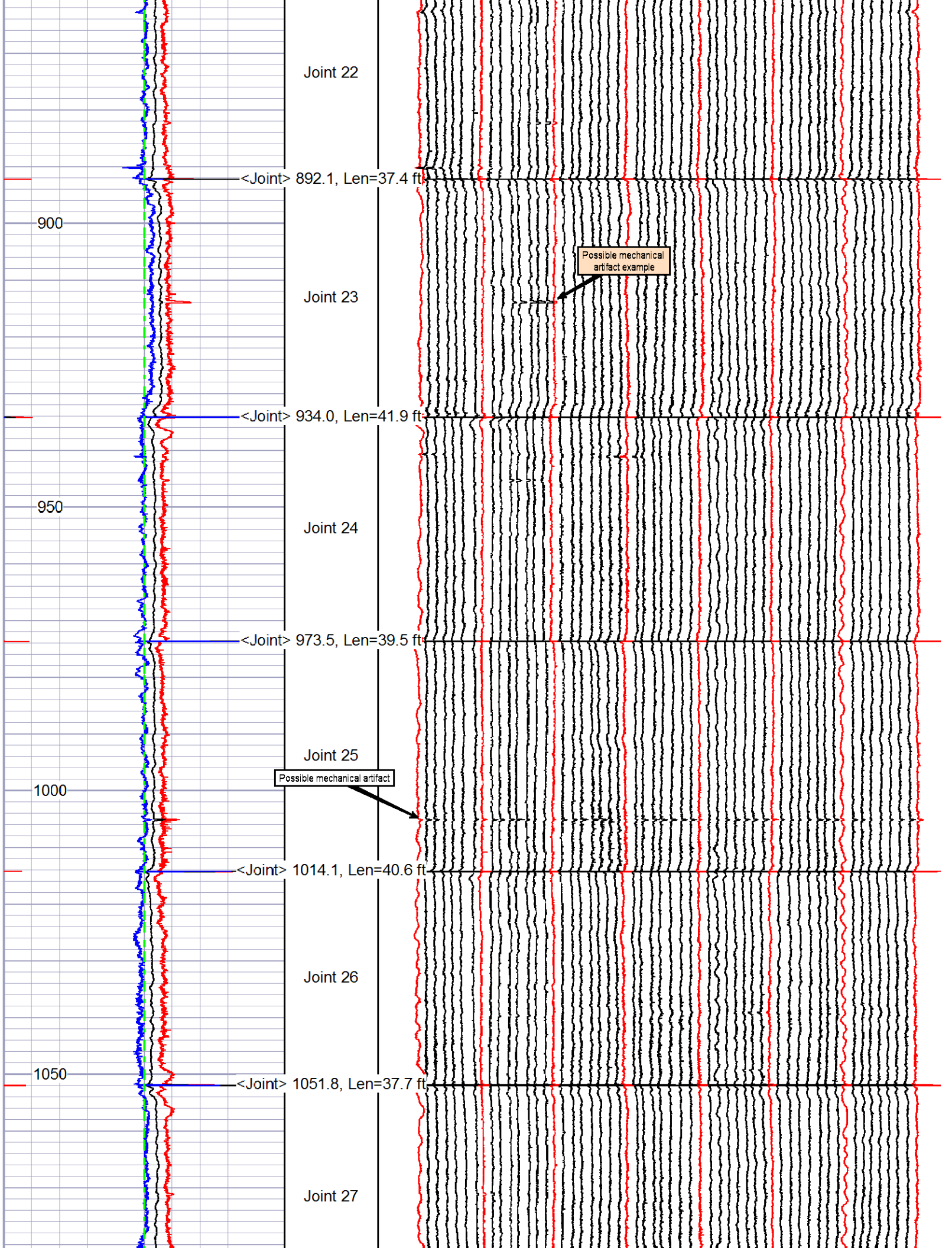
7.325	Maximum-Finger (in)	8.325	PTANN	56 FINGER TRACE
7.325	Average-Finger (in)	8.325		
7.325	Minimum-Finger (in)	8.325		
7.325	Nominal ID (in)	8.325		

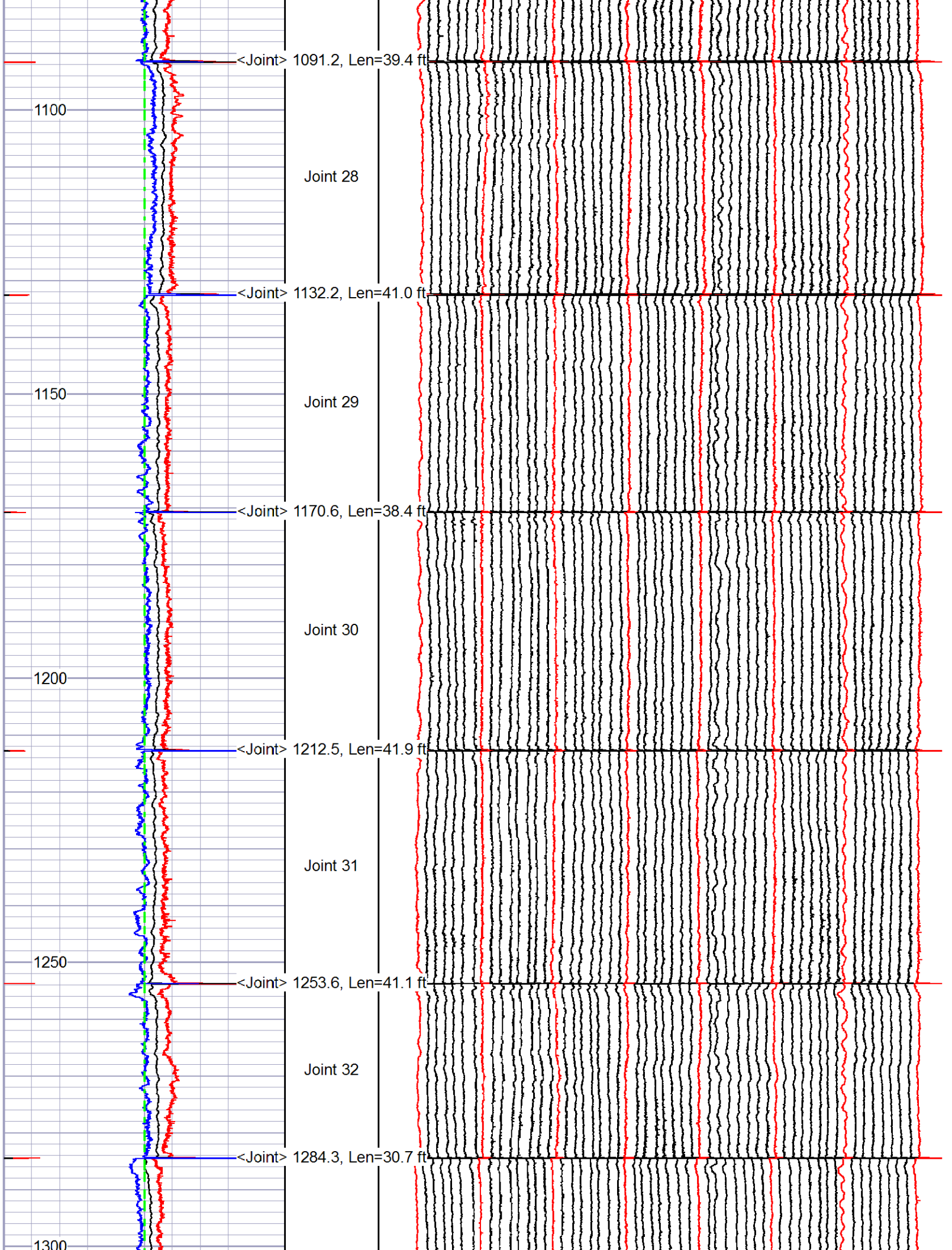


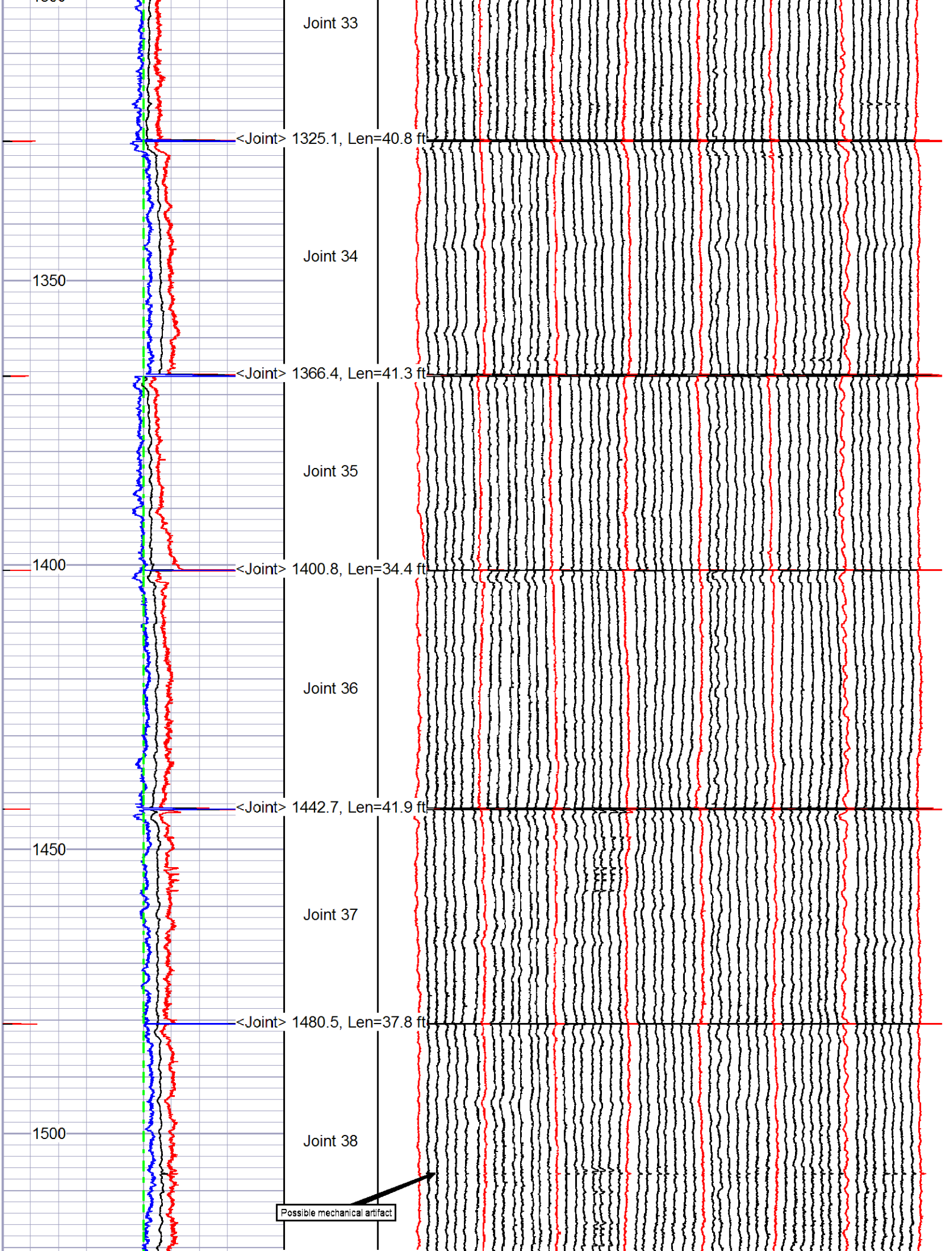

<Joint> 204.3, Len=40.8 ft
Joint 6
<Joint> 241.9, Len=37.6 ft
250
Possible mechanical artifact
Joint 7
<Joint> 282.8, Len=40.9 ft
300
Joint 8
<Joint> 323.9, Len=41.0 ft
Joint 9
350
Possible mechanical artifact example
<Joint> 363.9, Len=40.1 ft
Joint 10
400
<Joint> 404.9, Len=41.0 ft

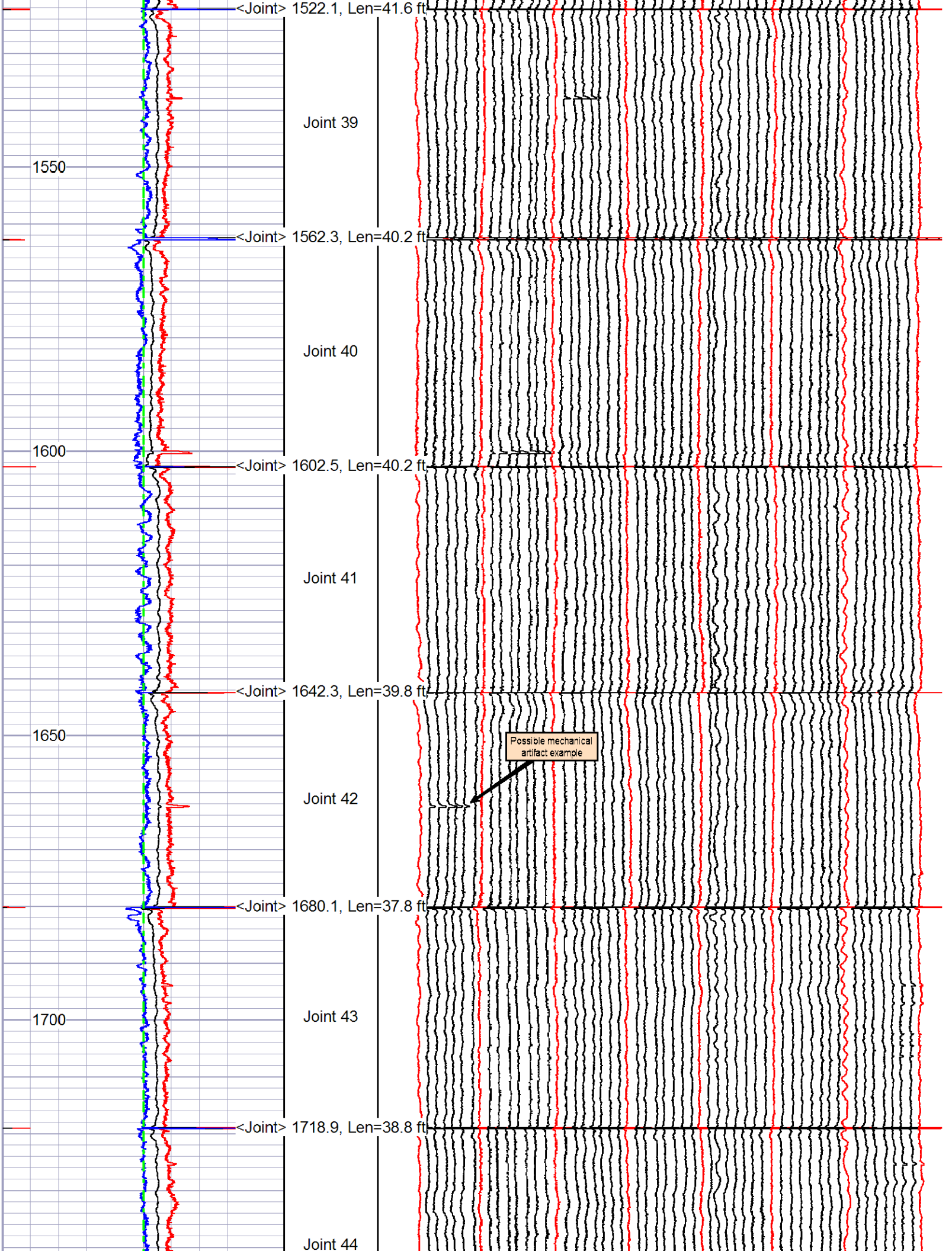

Joint 11
<Joint> 446.4, Len=41.5 ft
450
Joint 12
<Joint> 486.1, Len=39.7 ft
500
Joint 13
<Joint> 524.9, Len=38.8 ft
Joint 14
550
<Joint> 566.7, Len=41.8 ft
Joint 15
600
<Joint> 606.0, Len=39.3 ft
Joint 16

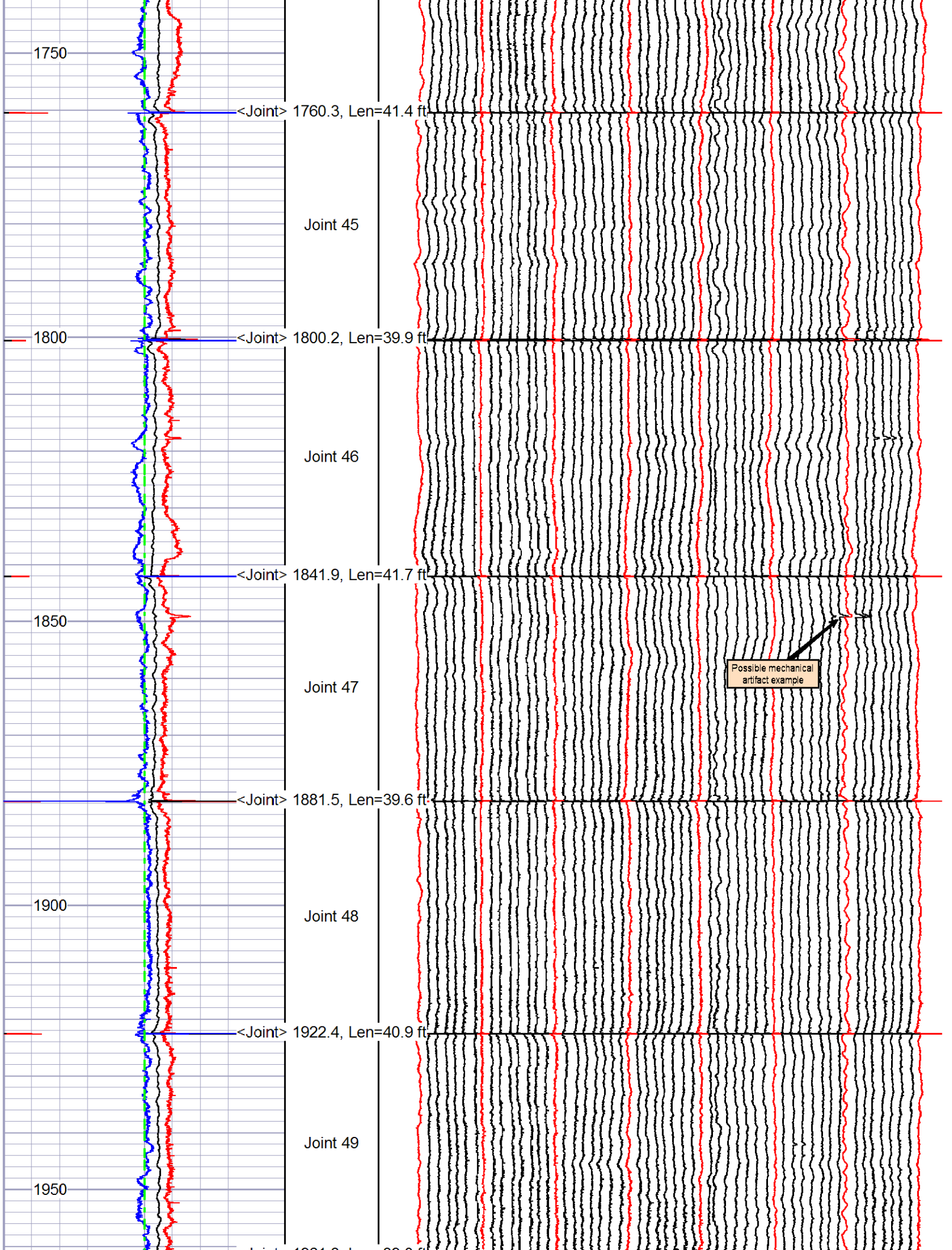

<Joint> 647.9, Len=41.9 ft
650
Joint 17
Possible mechanical artifact example
<Joint> 689.5, Len=41.6 ft
700
Joint 18
<Joint> 731.1, Len=41.7 ft
750
Joint 19
Possible mechanical artifact
<Joint> 772.7, Len=41.5 ft
Joint 20
800
<Joint> 813.1, Len=40.4 ft
Joint 21
850
<Joint> 854.8, Len=41.7 ft

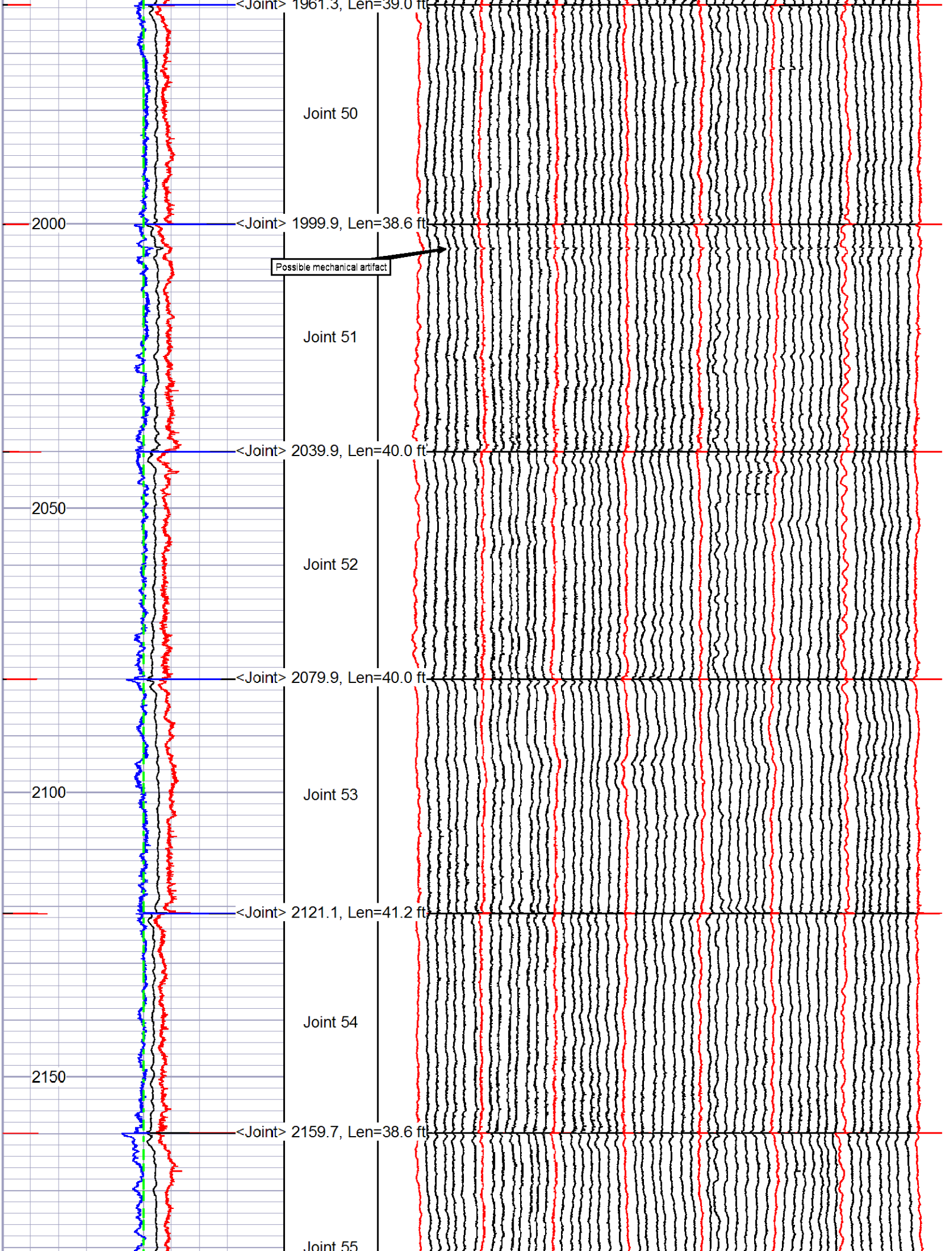

Joint 22
<Joint> 892.1, Len=37.4 ft
900
Possible mechanical artifact example
Joint 23
<Joint> 934.0, Len=41.9 ft
950
Joint 24
<Joint> 973.5, Len=39.5 ft
Joint 25
Possible mechanical artifact
1000
<Joint> 1014.1, Len=40.6 ft
Joint 26
1050
<Joint> 1051.8, Len=37.7 ft
Joint 27

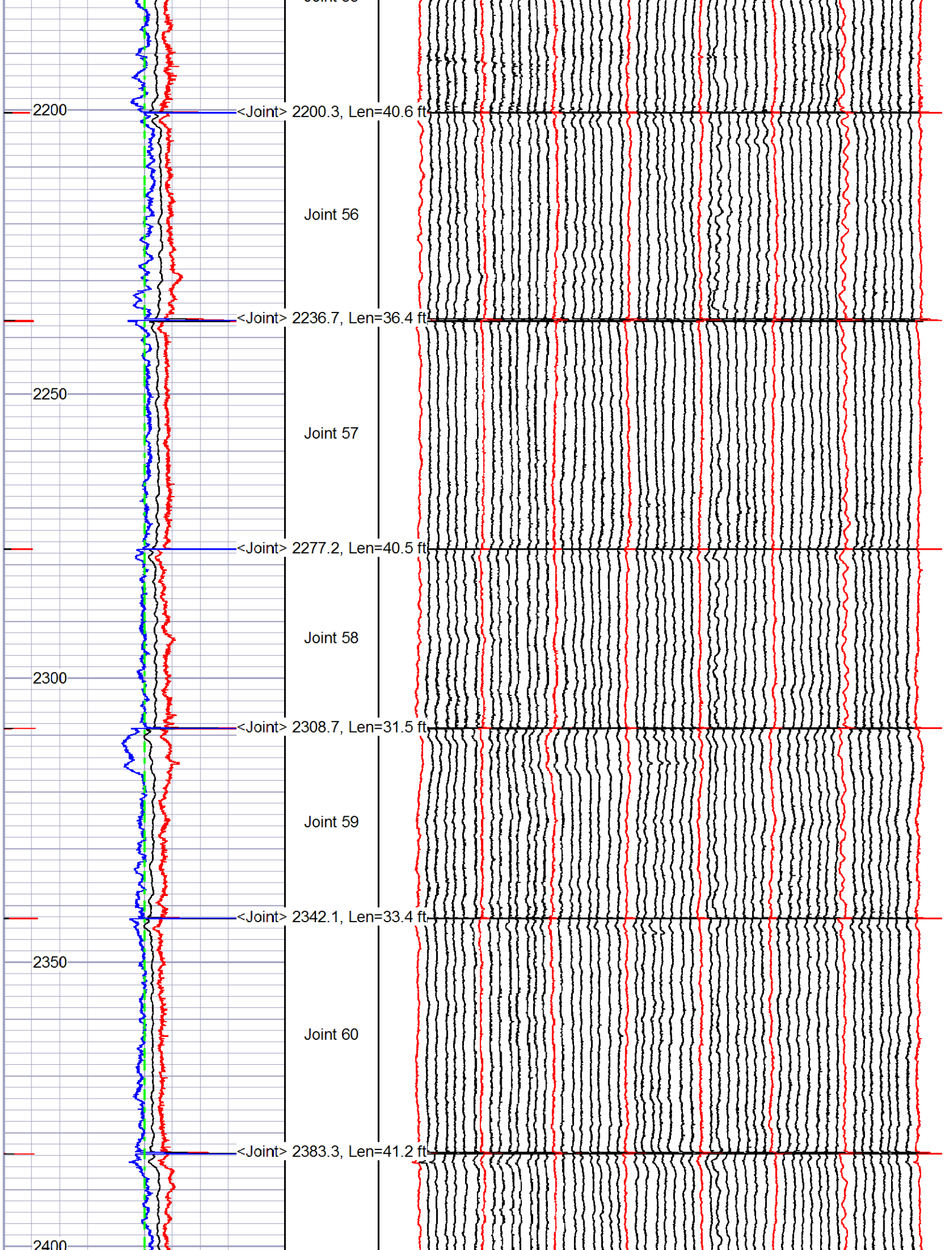

<Joint> 1091.2, Len=39.4 ft
1100
Joint 28
<Joint> 1132.2, Len=41.0 ft
1150
Joint 29
<Joint> 1170.6, Len=38.4 ft
Joint 30
1200
<Joint> 1212.5, Len=41.9 ft
Joint 31
1250
<Joint> 1253.6, Len=41.1 ft
Joint 32
<Joint> 1284.3, Len=30.7 ft
1300

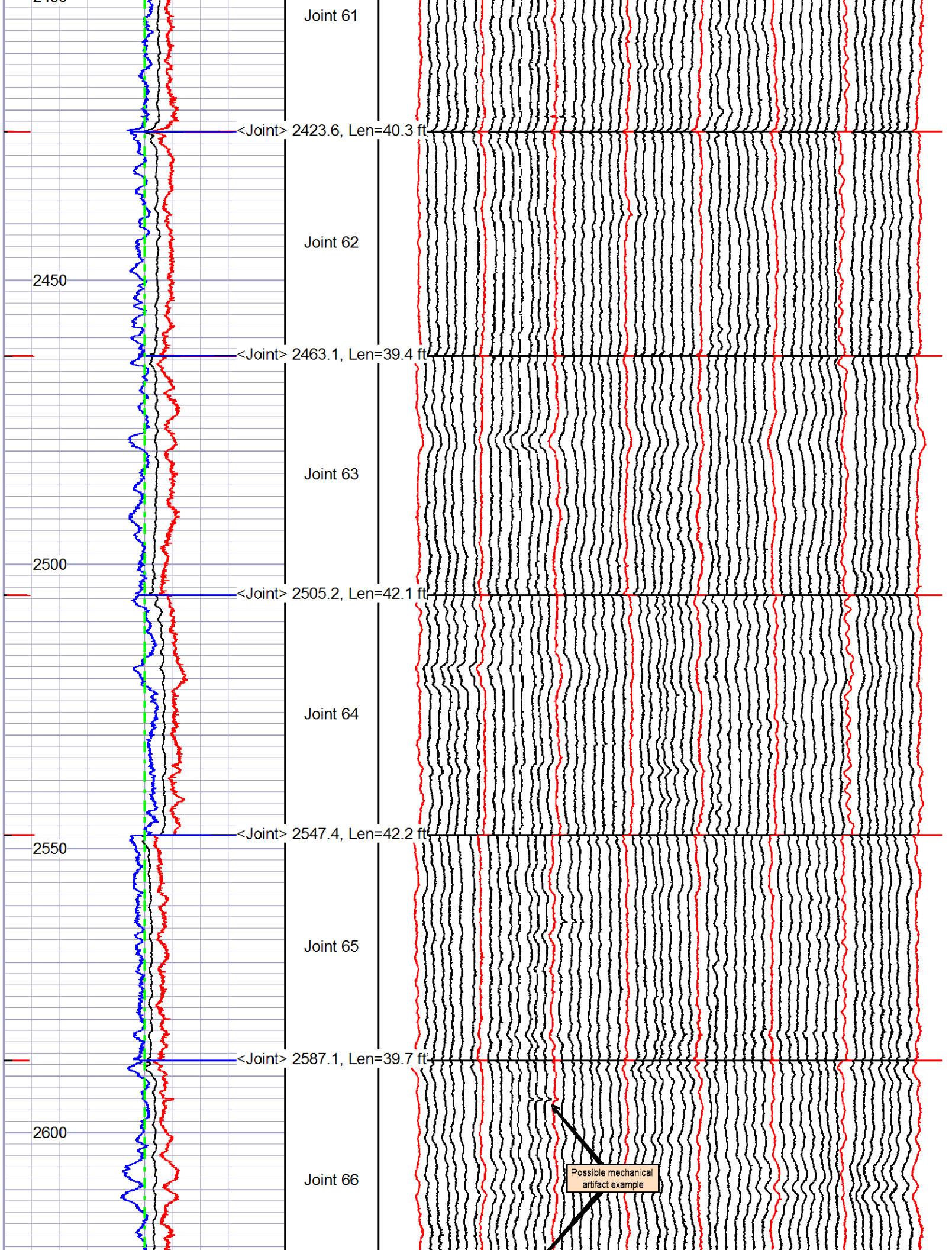

Joint 33
<Joint> 1325.1, Len=40.8 ft
Joint 34
1350
<Joint> 1366.4, Len=41.3 ft
Joint 35
1400
<Joint> 1400.8, Len=34.4 ft
Joint 36
<Joint> 1442.7, Len=41.9 ft
1450
Joint 37
<Joint> 1480.5, Len=37.8 ft
1500
Joint 38
Possible mechanical artifact

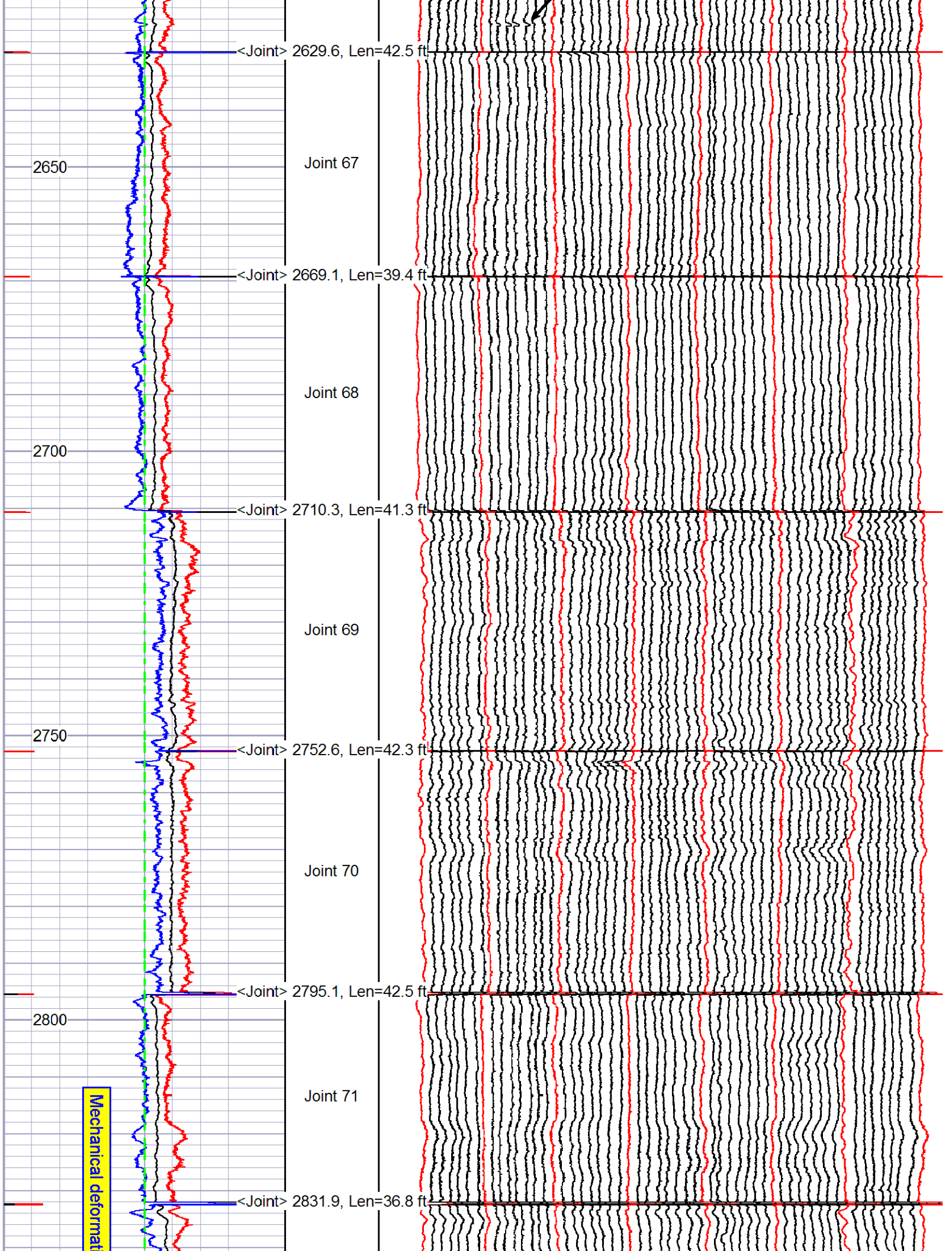

<Joint> 1522.1, Len=41.6 ft
Joint 39
1550
<Joint> 1562.3, Len=40.2 ft
Joint 40
1600
<Joint> 1602.5, Len=40.2 ft
Joint 41
<Joint> 1642.3, Len=39.8 ft
1650
Possible mechanical artifact example
Joint 42
<Joint> 1680.1, Len=37.8 ft
1700
Joint 43
<Joint> 1718.9, Len=38.8 ft
Joint 44

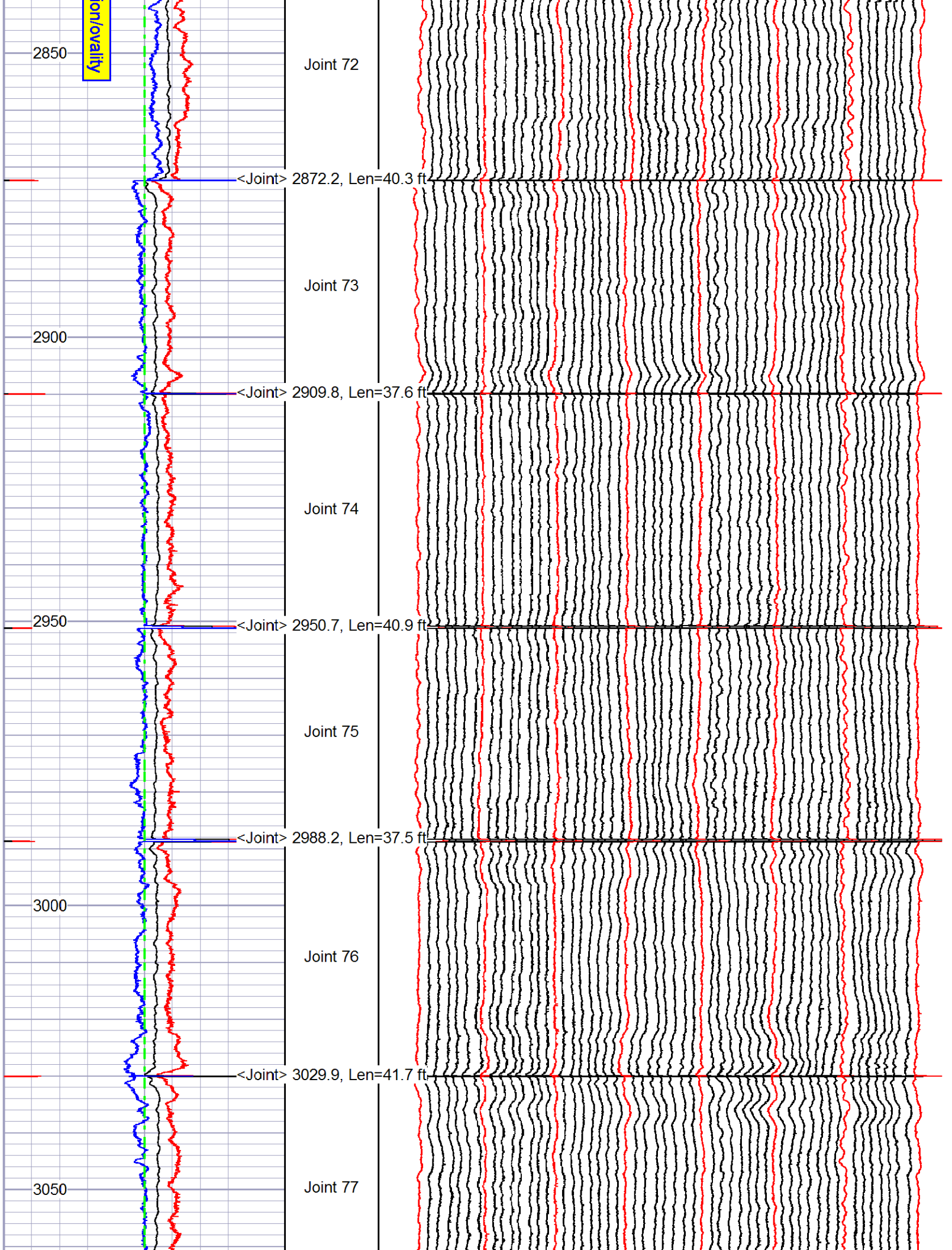

1750
<Joint> 1760.3, Len=41.4 ft
Joint 45
1800
<Joint> 1800.2, Len=39.9 ft
Joint 46
<Joint> 1841.9, Len=41.7 ft
1850
Joint 47
Possible mechanical artifact example
<Joint> 1881.5, Len=39.6 ft
1900
Joint 48
<Joint> 1922.4, Len=40.9 ft
Joint 49
1950

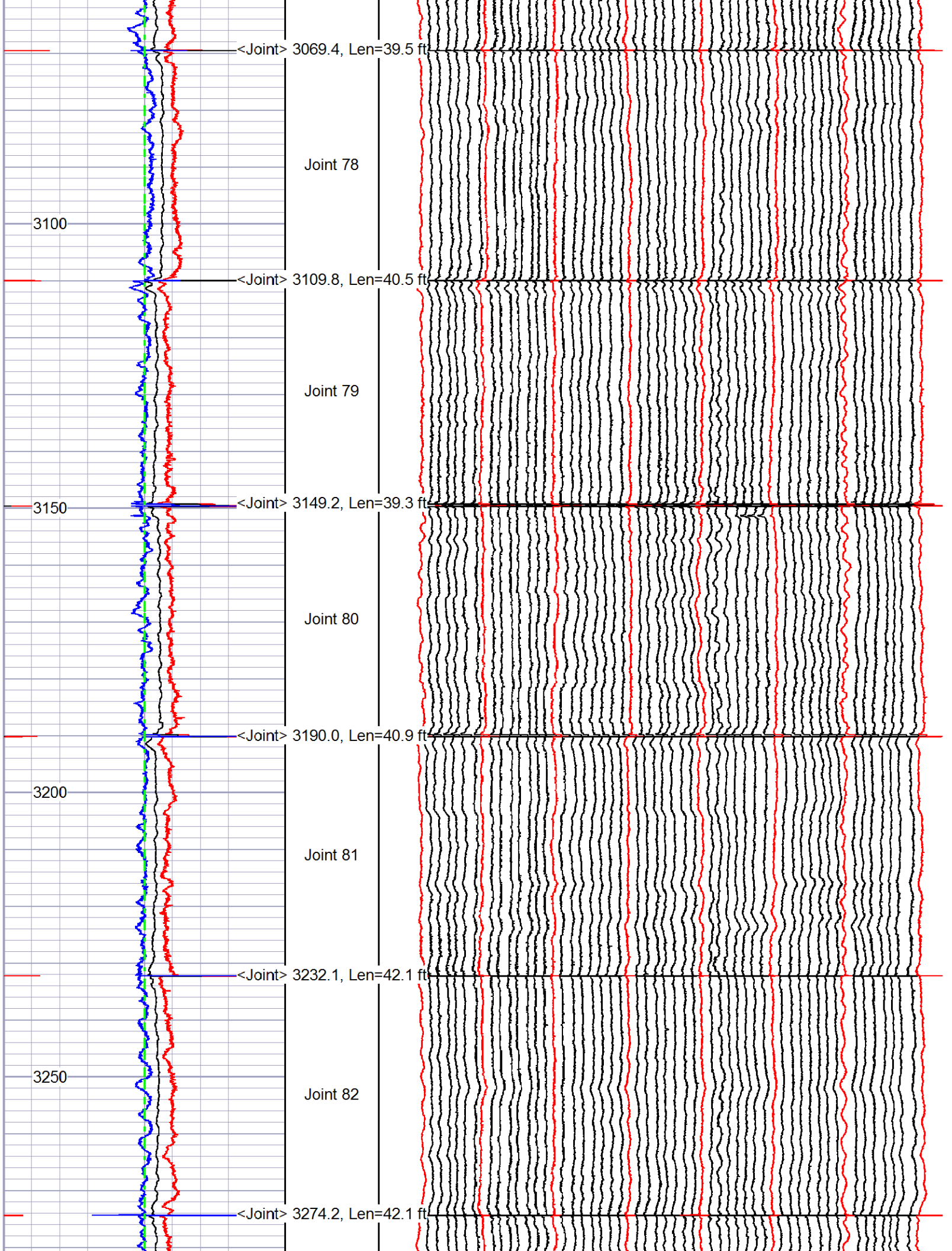

<Joint> 1961.3, Len=39.0 ft
Joint 50
2000
<Joint> 1999.9, Len=38.6 ft
Possible mechanical artifact
Joint 51
<Joint> 2039.9, Len=40.0 ft
2050
Joint 52
<Joint> 2079.9, Len=40.0 ft
2100
Joint 53
<Joint> 2121.1, Len=41.2 ft
Joint 54
2150
<Joint> 2159.7, Len=38.6 ft
Joint 55

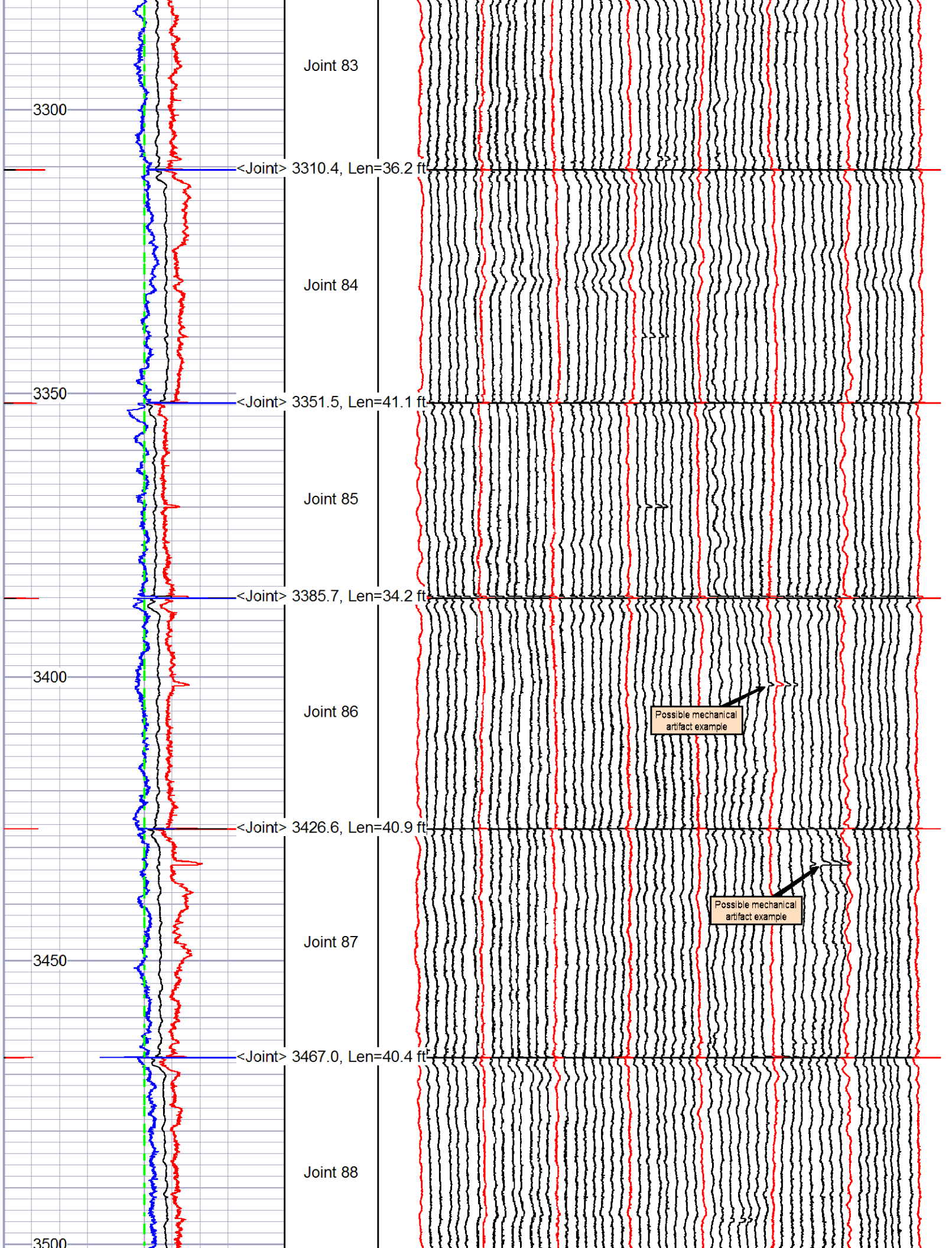

2200
<Joint> 2200.3, Len=40.6 ft
Joint 56
<Joint> 2236.7, Len=36.4 ft
2250
Joint 57
<Joint> 2277.2, Len=40.5 ft
Joint 58
2300
<Joint> 2308.7, Len=31.5 ft
Joint 59
<Joint> 2342.1, Len=33.4 ft
2350
Joint 60
<Joint> 2383.3, Len=41.2 ft
2400

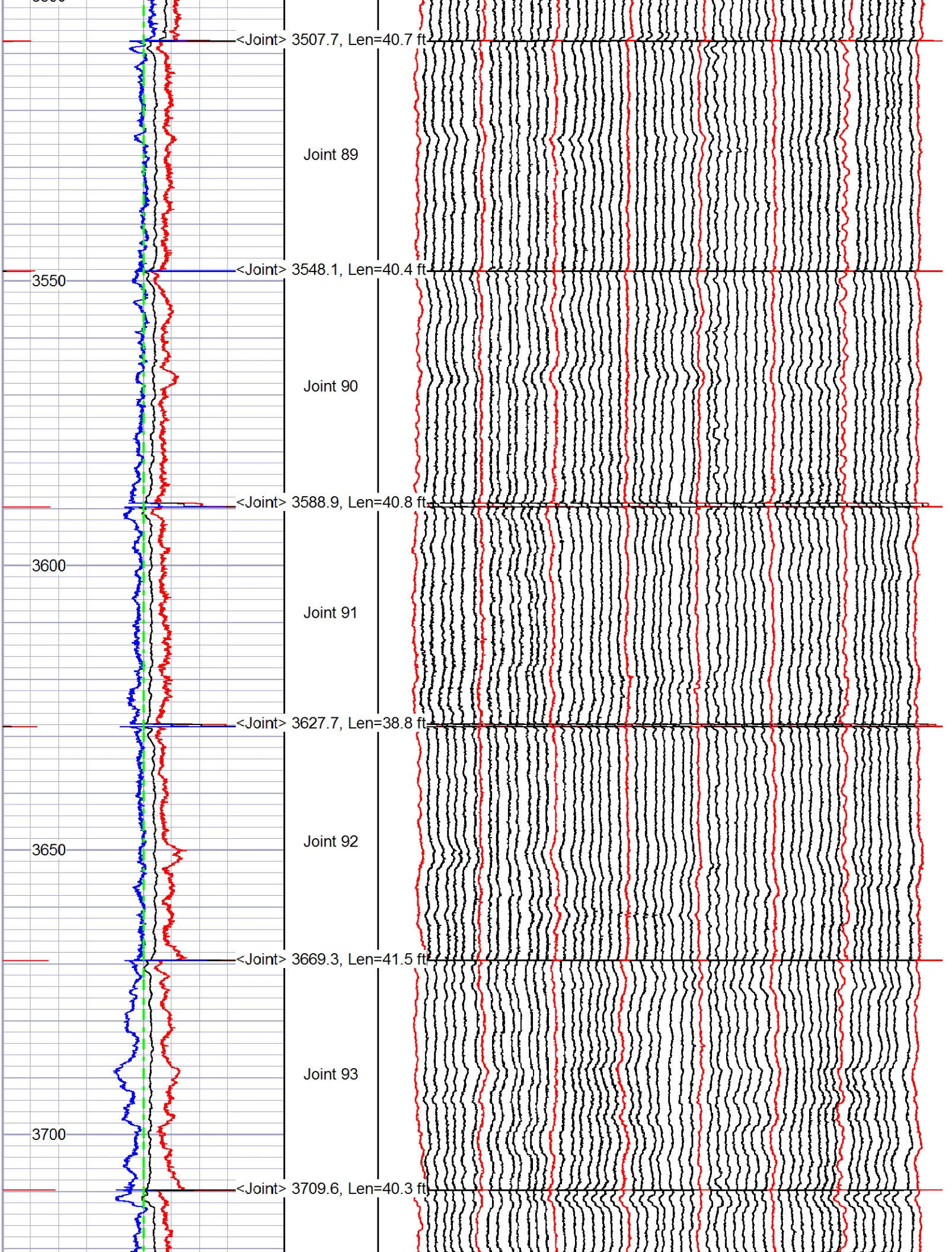

Joint 61
<Joint> 2423.6, Len=40.3 ft
Joint 62
2450
<Joint> 2463.1, Len=39.4 ft
Joint 63
2500
<Joint> 2505.2, Len=42.1 ft
Joint 64
<Joint> 2547.4, Len=42.2 ft
2550
Joint 65
<Joint> 2587.1, Len=39.7 ft
2600
Joint 66
Possible mechanical artifact example

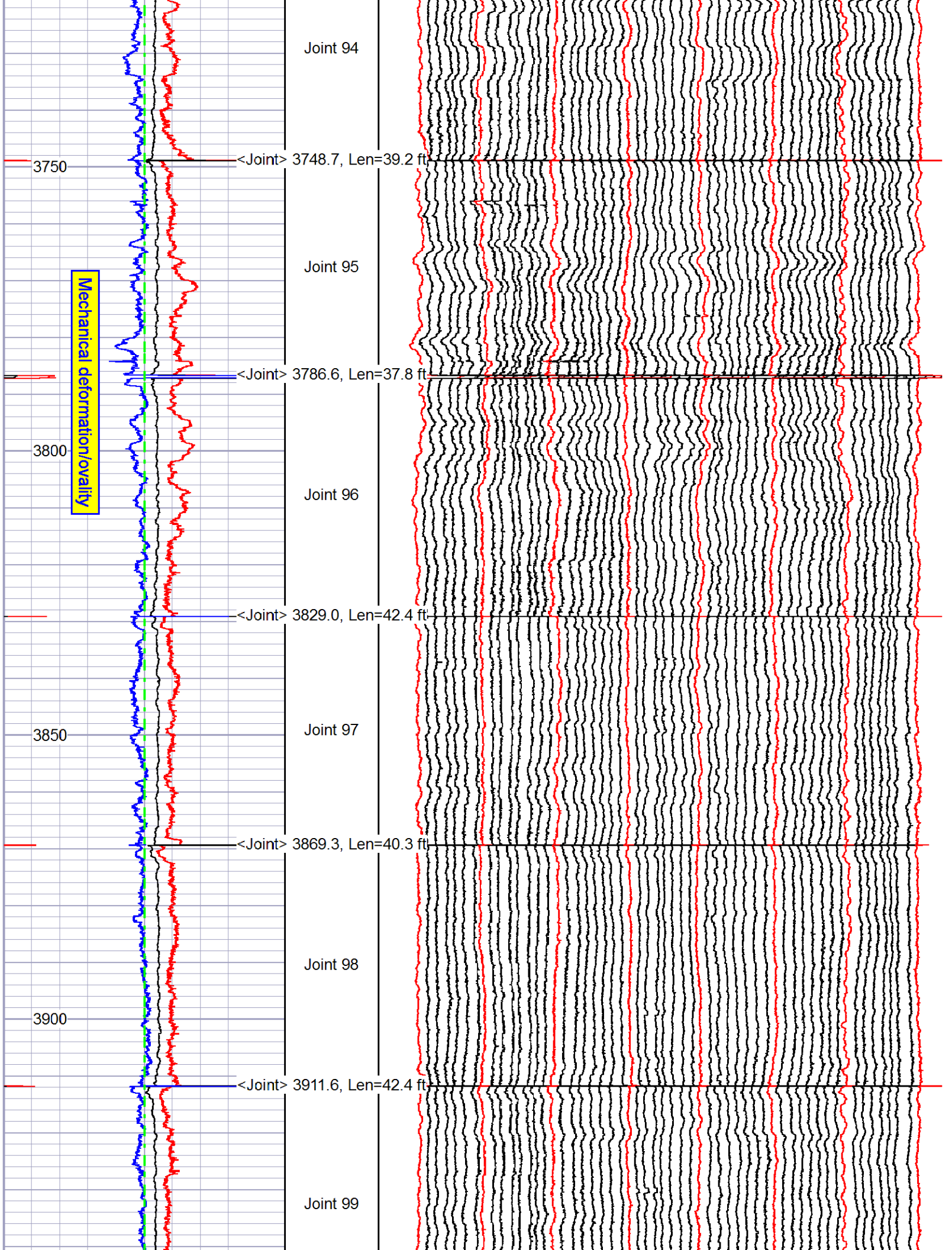

<Joint> 2629.6, Len=42.5 ft
2650
Joint 67
<Joint> 2669.1, Len=39.4 ft
Joint 68
2700
<Joint> 2710.3, Len=41.3 ft
Joint 69
2750
<Joint> 2752.6, Len=42.3 ft
Joint 70
<Joint> 2795.1, Len=42.5 ft
2800
Joint 71
<Joint> 2831.9, Len=36.8 ft
Mechanical deformati

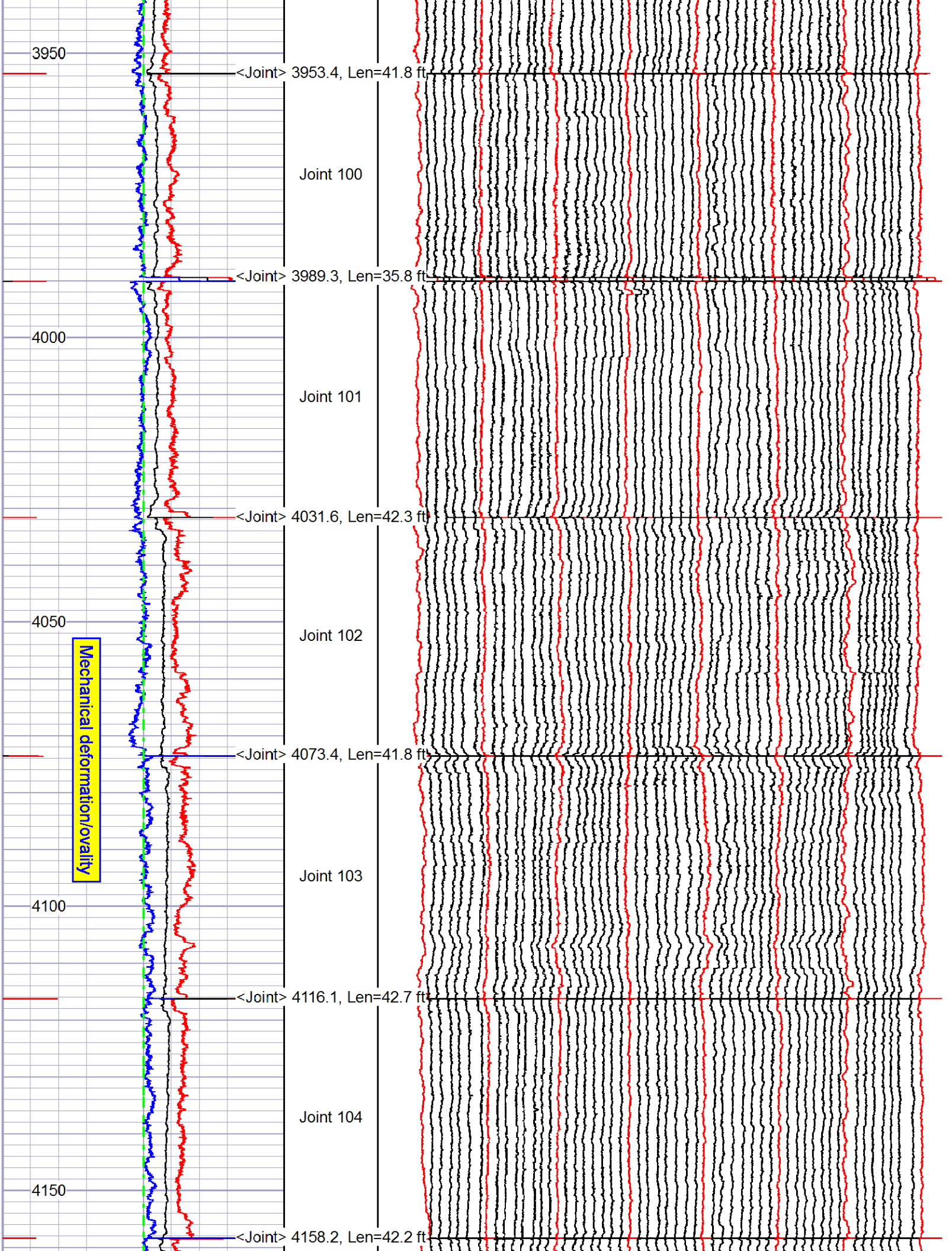

on/ovality
2850
Joint 72
<Joint> 2872.2, Len=40.3 ft
Joint 73
2900
<Joint> 2909.8, Len=37.6 ft
Joint 74
2950
<Joint> 2950.7, Len=40.9 ft
Joint 75
<Joint> 2988.2, Len=37.5 ft
3000
Joint 76
<Joint> 3029.9, Len=41.7 ft
3050
Joint 77

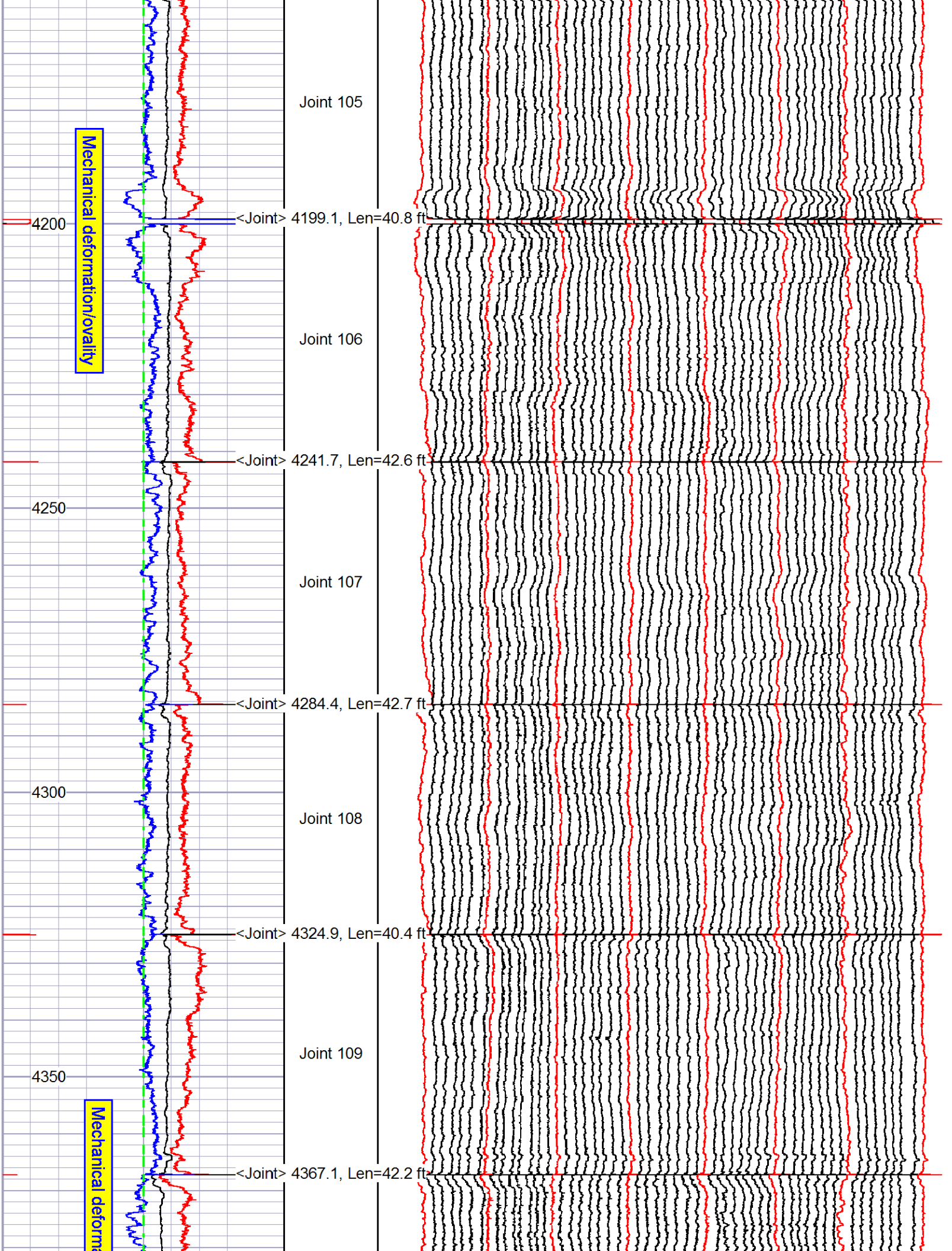

<Joint> 3069.4, Len=39.5 ft
Joint 78
3100
<Joint> 3109.8, Len=40.5 ft
Joint 79
3150
<Joint> 3149.2, Len=39.3 ft
Joint 80
<Joint> 3190.0, Len=40.9 ft
3200
Joint 81
<Joint> 3232.1, Len=42.1 ft
3250
Joint 82
<Joint> 3274.2, Len=42.1 ft

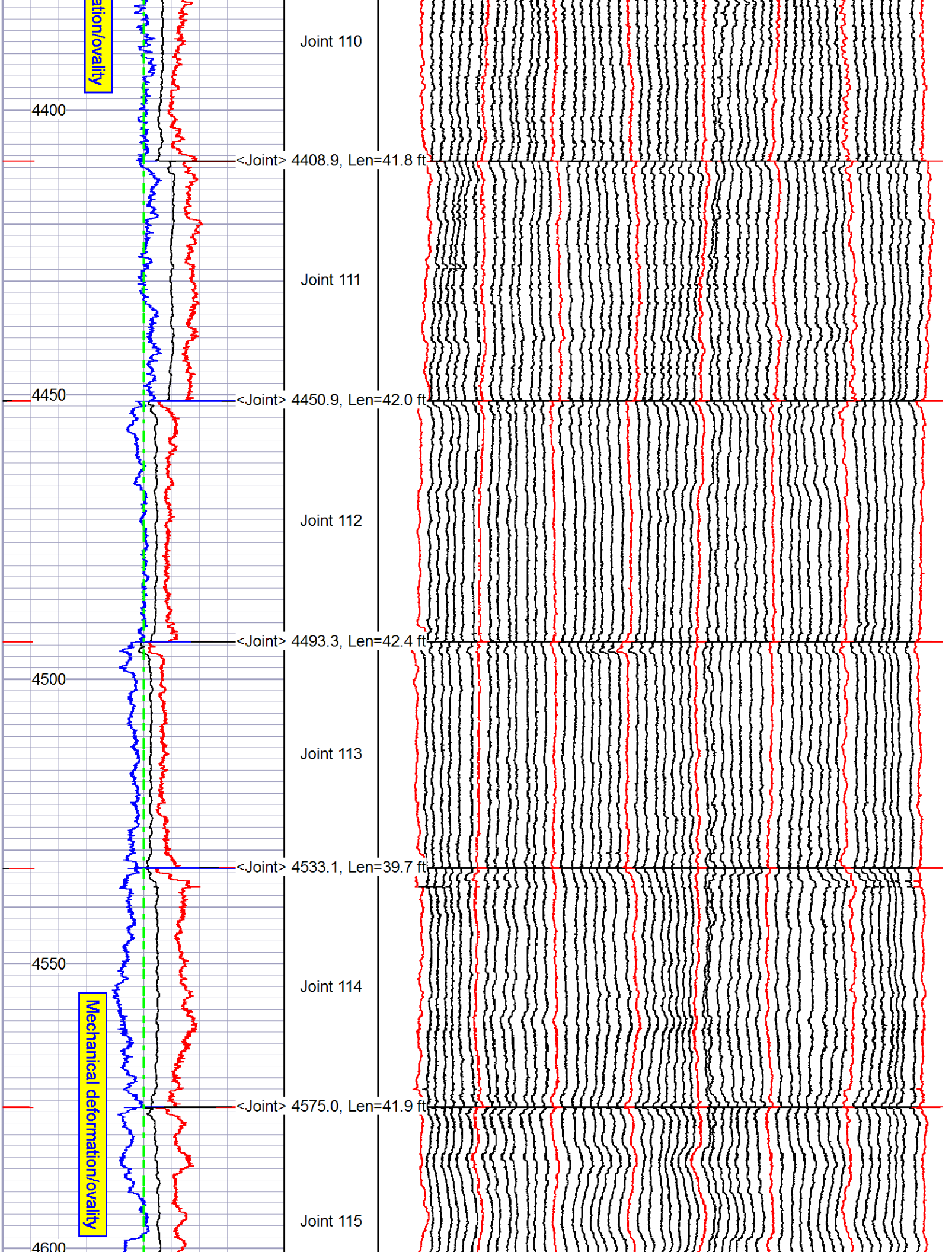

Joint 83
3300
<Joint> 3310.4, Len=36.2 ft
Joint 84
3350
<Joint> 3351.5, Len=41.1 ft
Joint 85
<Joint> 3385.7, Len=34.2 ft
3400
Joint 86
Possible mechanical artifact example
<Joint> 3426.6, Len=40.9 ft
Possible mechanical artifact example
Joint 87
3450
<Joint> 3467.0, Len=40.4 ft
Joint 88
3500

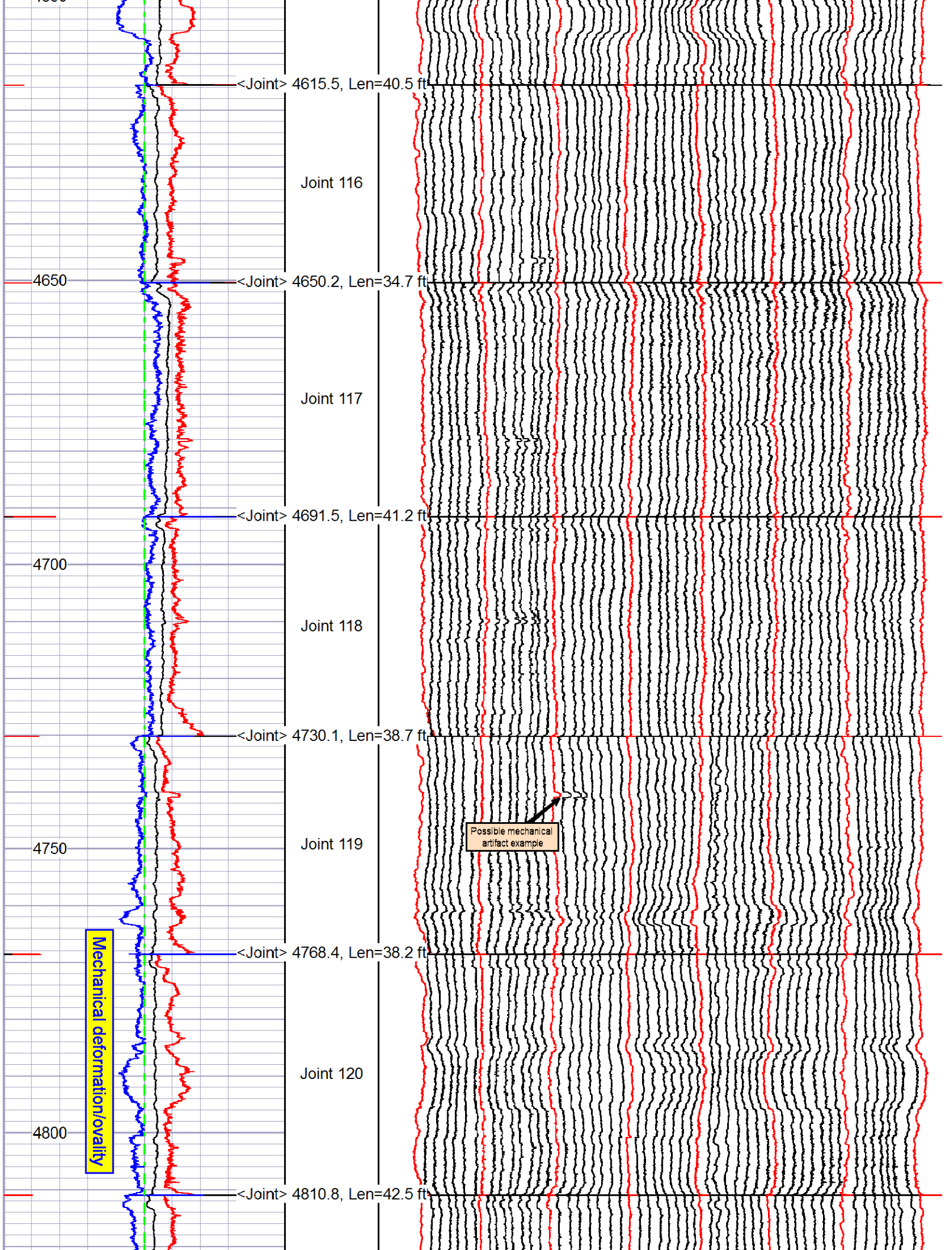

<Joint> 3507.7, Len=40.7 ft
Joint 89
<Joint> 3548.1, Len=40.4 ft
3550
Joint 90
<Joint> 3588.9, Len=40.8 ft
3600
Joint 91
<Joint> 3627.7, Len=38.8 ft
3650
Joint 92
<Joint> 3669.3, Len=41.5 ft
Joint 93
3700
<Joint> 3709.6, Len=40.3 ft

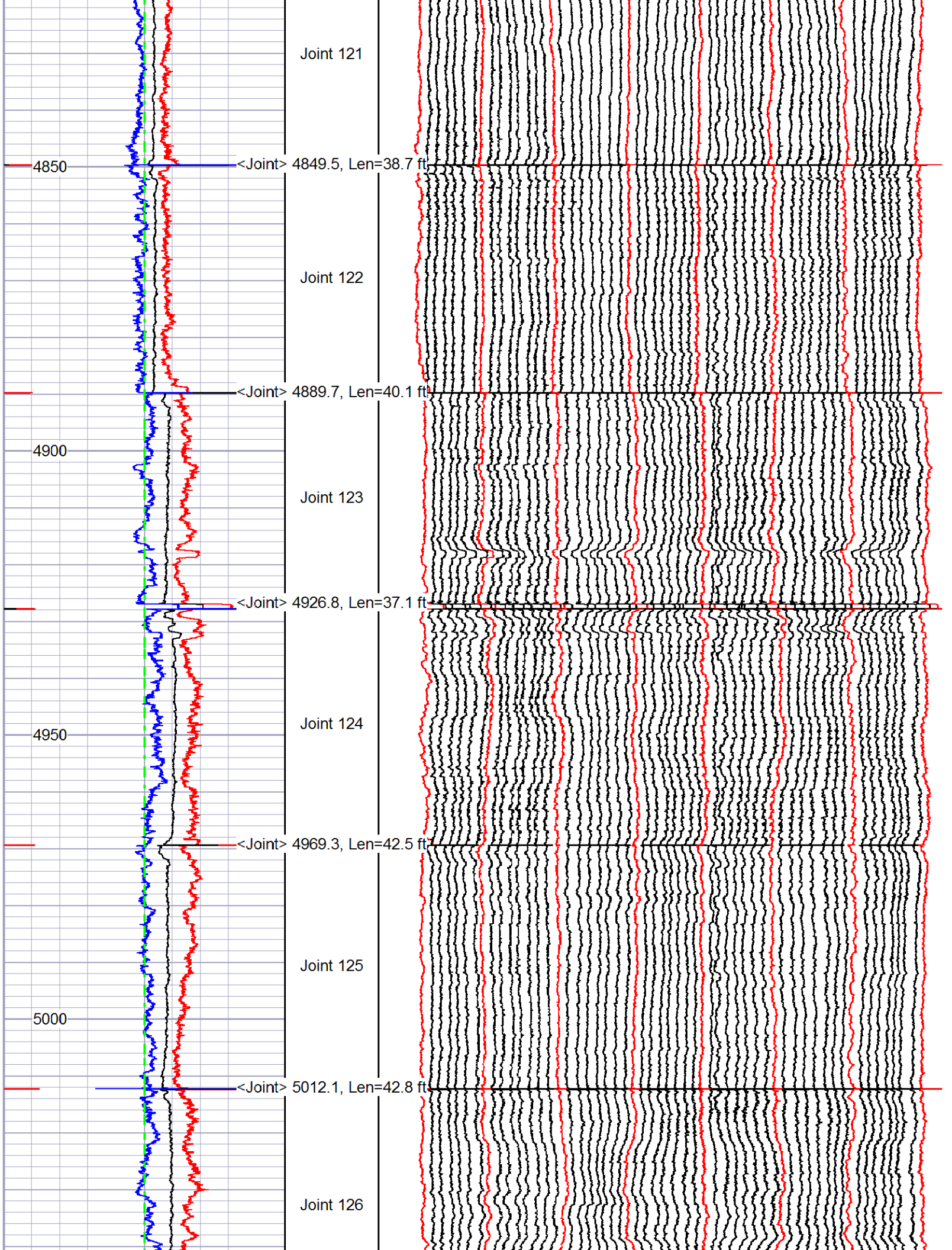

Joint 94
3750
<Joint> 3748.7, Len=39.2 ft
Joint 95
Mechanical deformation/ovality
<Joint> 3786.6, Len=37.8 ft
3800
Joint 96
<Joint> 3829.0, Len=42.4 ft
3850
Joint 97
<Joint> 3869.3, Len=40.3 ft
Joint 98
3900
<Joint> 3911.6, Len=42.4 ft
Joint 99

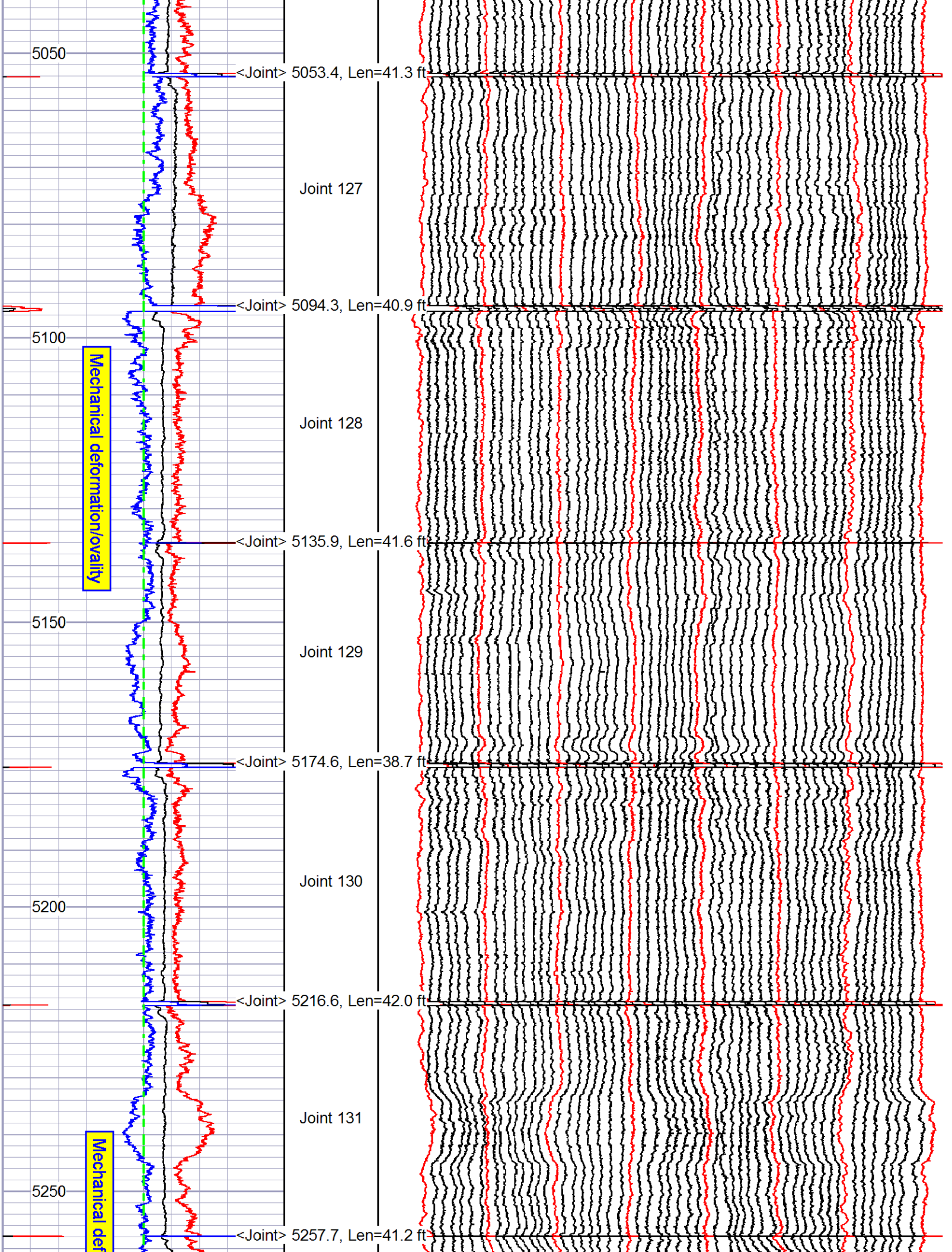

3950
4000
4050
4100
4150
Mechanical deformation/ovality
<Joint> 3953.4, Len=41.8 ft
Joint 100
<Joint> 3989.3, Len=35.8 ft
Joint 101
<Joint> 4031.6, Len=42.3 ft
Joint 102
<Joint> 4073.4, Len=41.8 ft
Joint 103
<Joint> 4116.1, Len=42.7 ft
Joint 104
<Joint> 4158.2, Len=42.2 ft

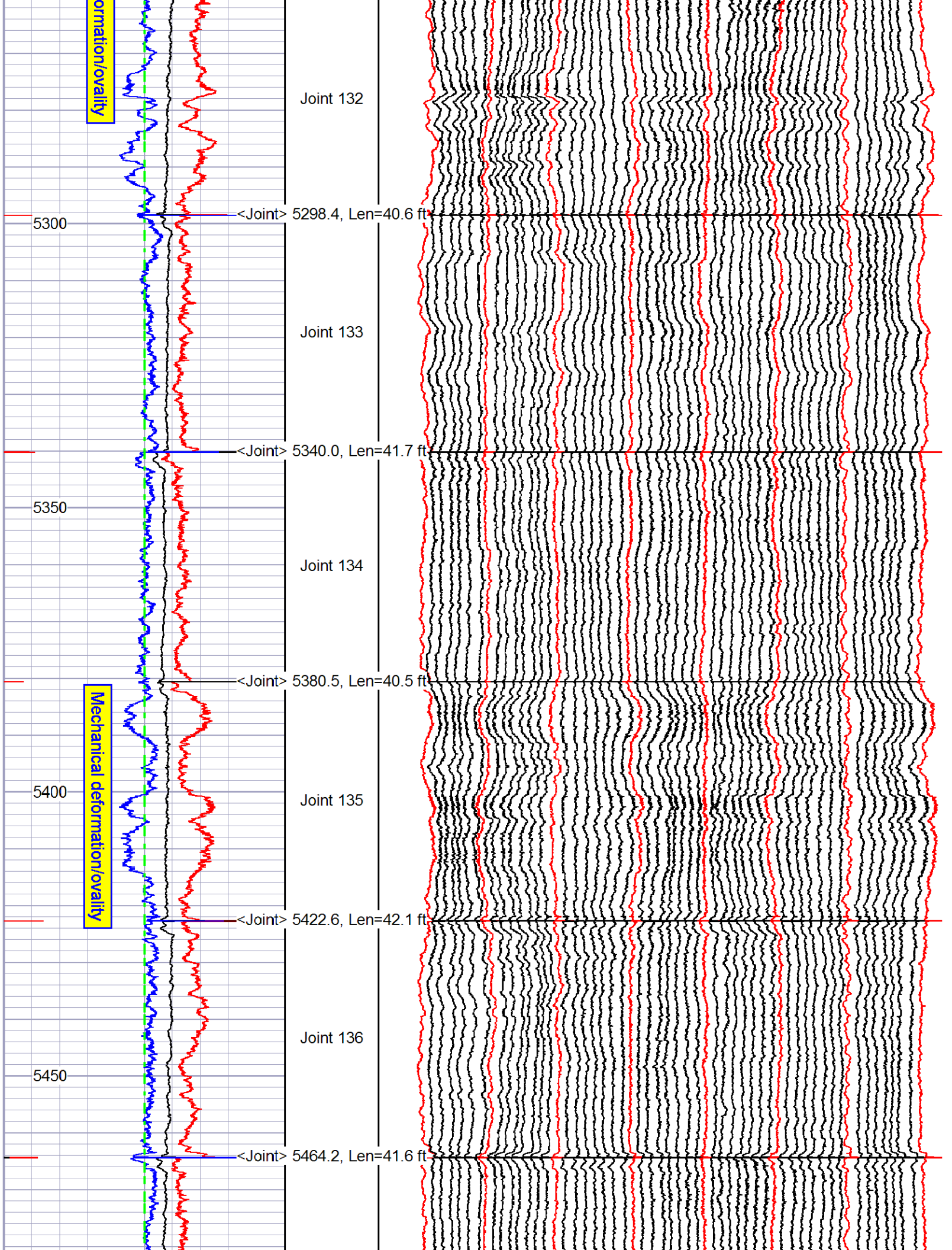

Mechanical deformation/ovality
4200
4250
4300
4350
Joint 105
Joint 106
Joint 107
Joint 108
Joint 109
<Joint> 4199.1, Len=40.8 ft
<Joint> 4241.7, Len=42.6 ft
<Joint> 4284.4, Len=42.7 ft
<Joint> 4324.9, Len=40.4 ft
<Joint> 4367.1, Len=42.2 ft

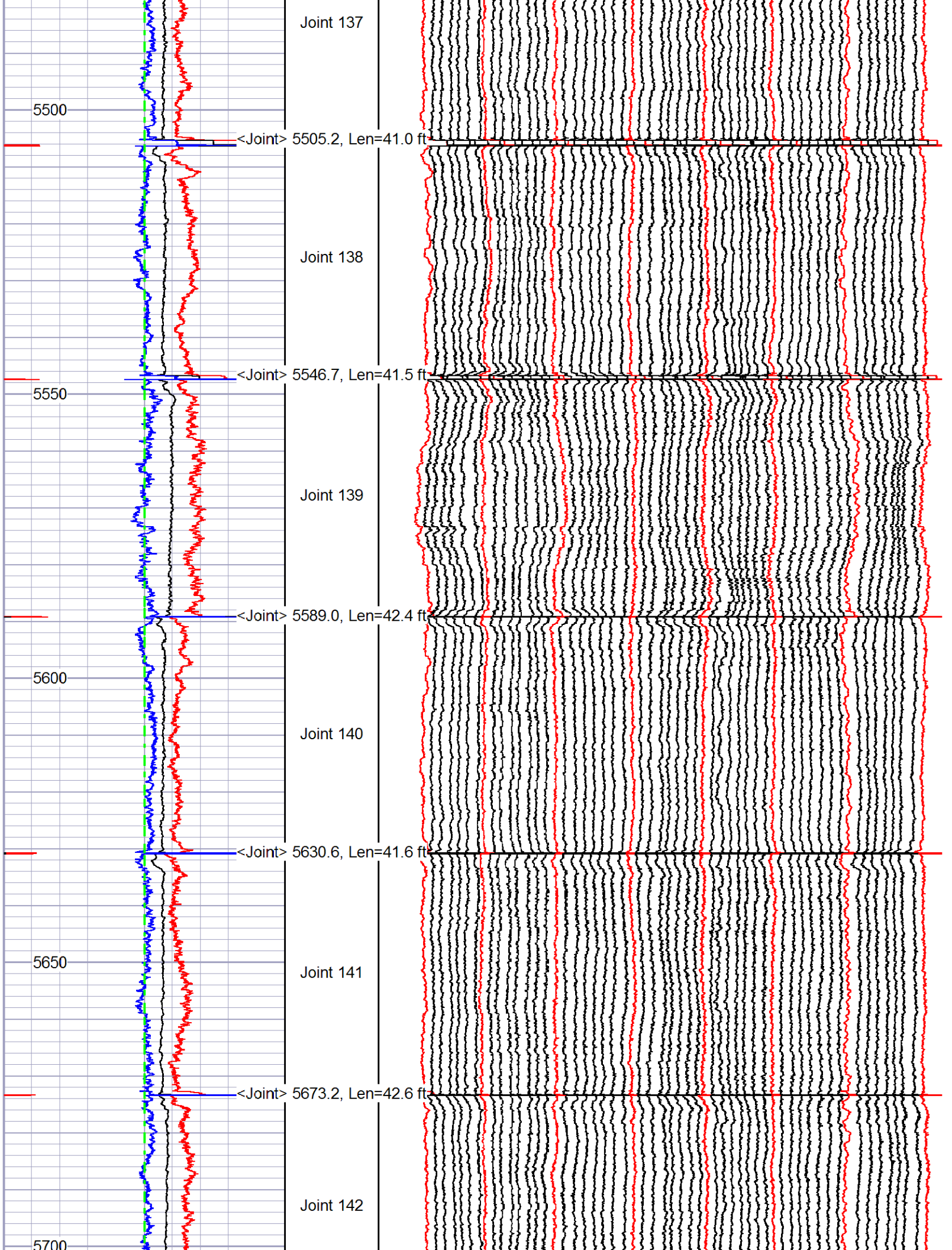

ation/ovality
Joint 110
4400
<Joint> 4408.9, Len=41.8 ft
Joint 111
4450
<Joint> 4450.9, Len=42.0 ft
Joint 112
<Joint> 4493.3, Len=42.4 ft
4500
Joint 113
<Joint> 4533.1, Len=39.7 ft
4550
Joint 114
Mechanical deformation/ovality
<Joint> 4575.0, Len=41.9 ft
Joint 115
4600

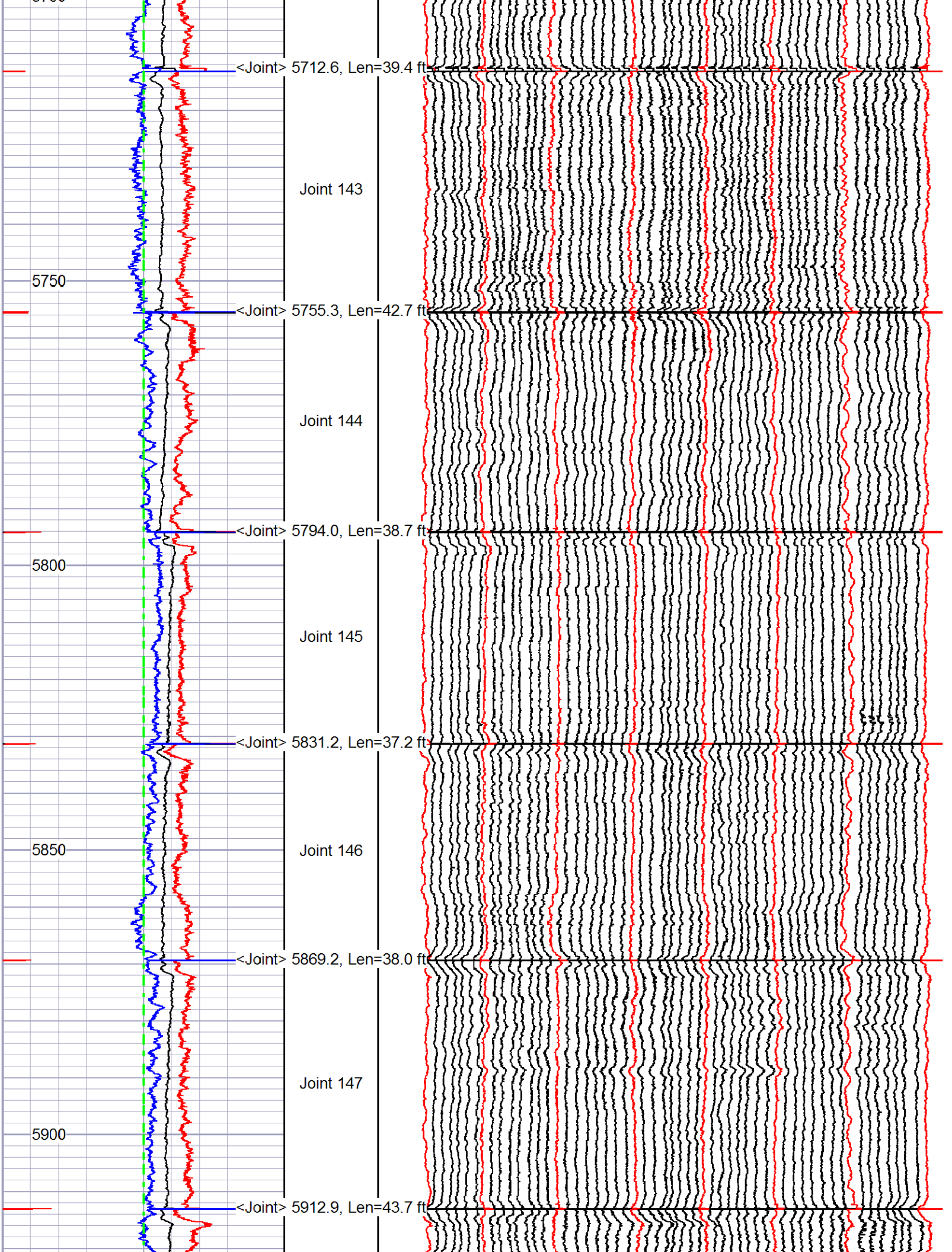

<Joint> 4615.5, Len=40.5 ft
Joint 116
4650
<Joint> 4650.2, Len=34.7 ft
Joint 117
<Joint> 4691.5, Len=41.2 ft
4700
Joint 118
<Joint> 4730.1, Len=38.7 ft
4750
Joint 119
Possible mechanical artifact example
<Joint> 4768.4, Len=38.2 ft
Mechanical deformation/ovality
Joint 120
4800
<Joint> 4810.8, Len=42.5 ft

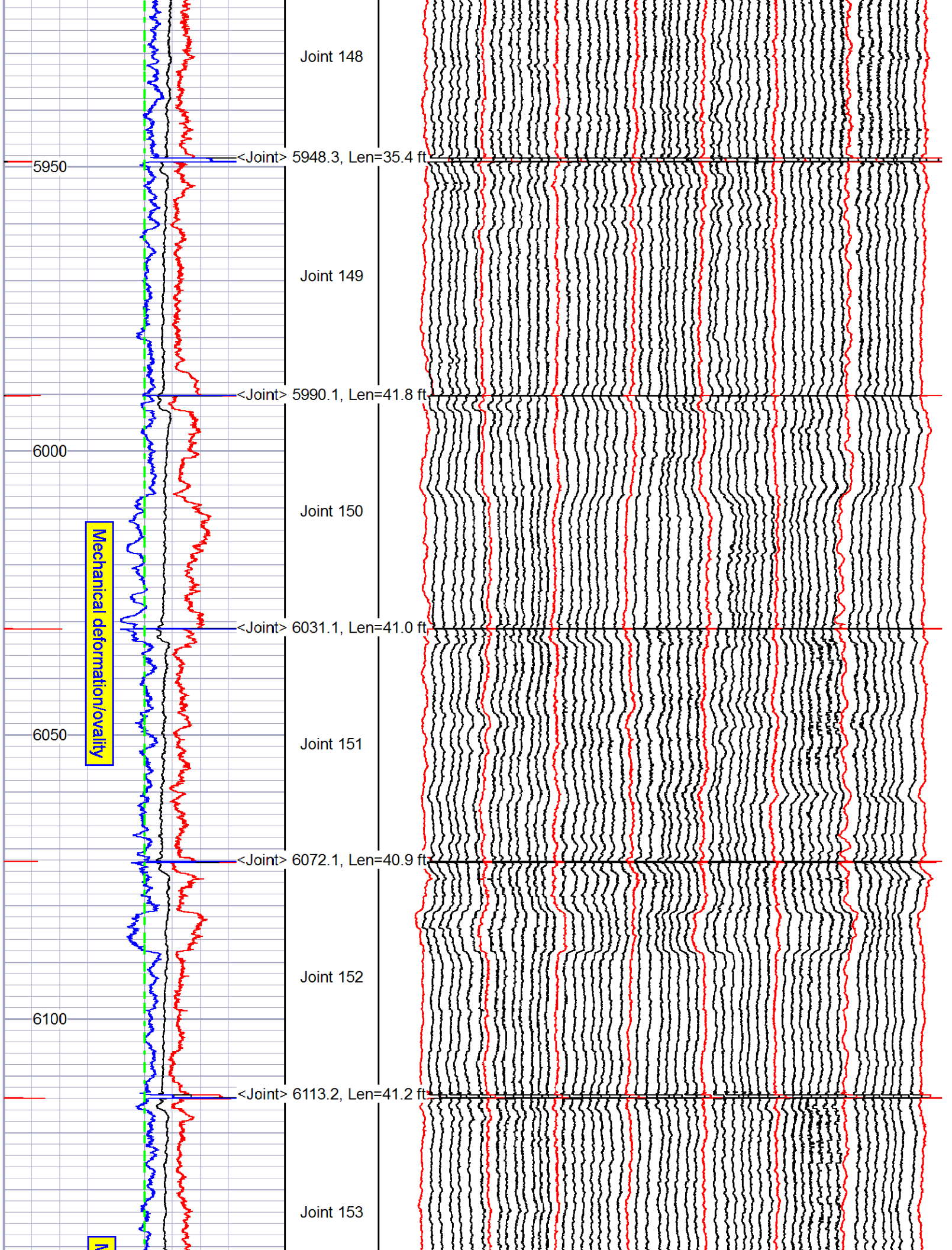

Joint 121
4850
<Joint> 4849.5, Len=38.7 ft
Joint 122
<Joint> 4889.7, Len=40.1 ft
4900
Joint 123
<Joint> 4926.8, Len=37.1 ft
4950
Joint 124
<Joint> 4969.3, Len=42.5 ft
Joint 125
5000
<Joint> 5012.1, Len=42.8 ft
Joint 126

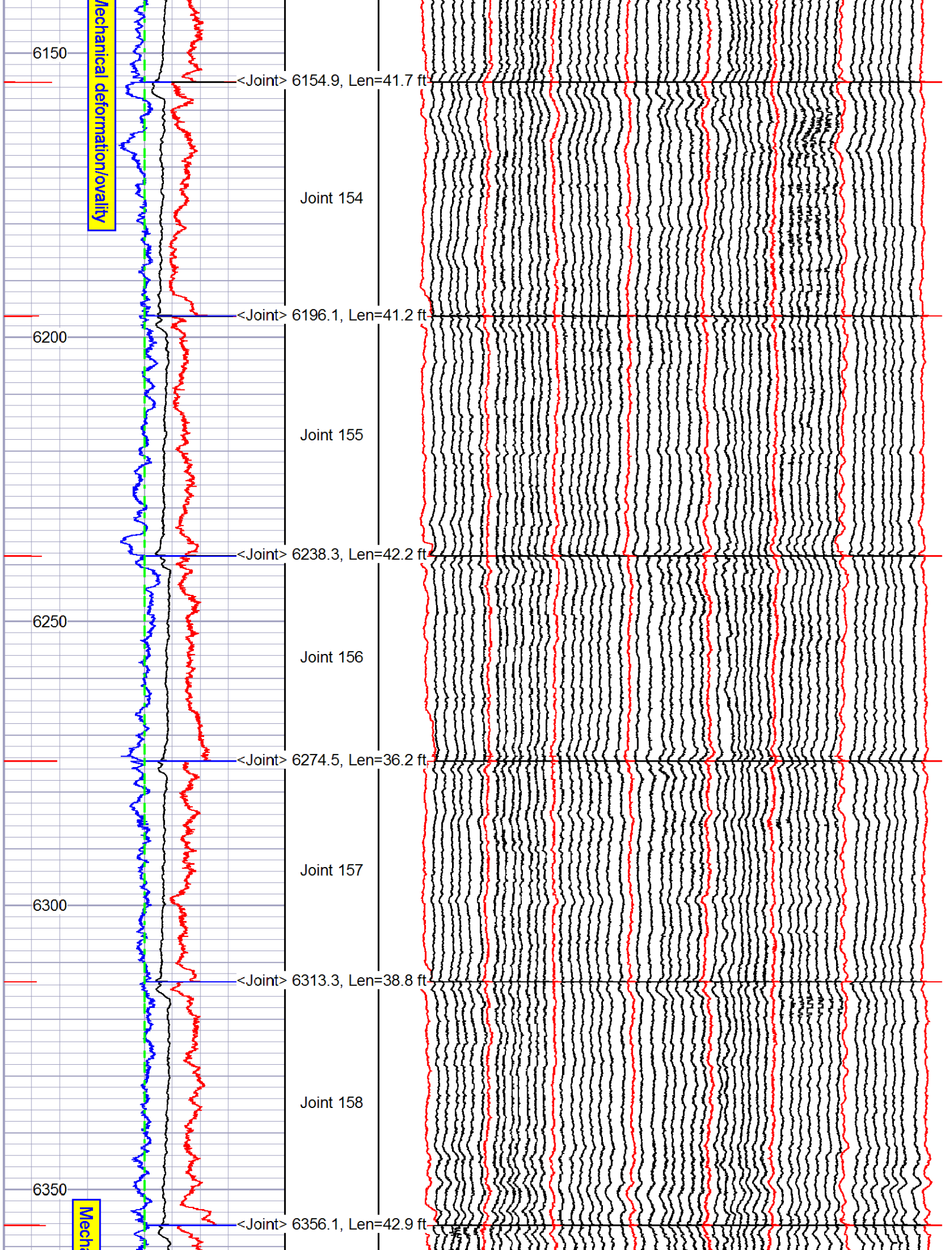

5050
<Joint> 5053.4, Len=41.3 ft
Joint 127
<Joint> 5094.3, Len=40.9 ft
5100
Mechanical deformation/ovality
Joint 128
<Joint> 5135.9, Len=41.6 ft
5150
Joint 129
<Joint> 5174.6, Len=38.7 ft
Joint 130
5200
<Joint> 5216.6, Len=42.0 ft
Joint 131
Mechanical def
5250
<Joint> 5257.7, Len=41.2 ft

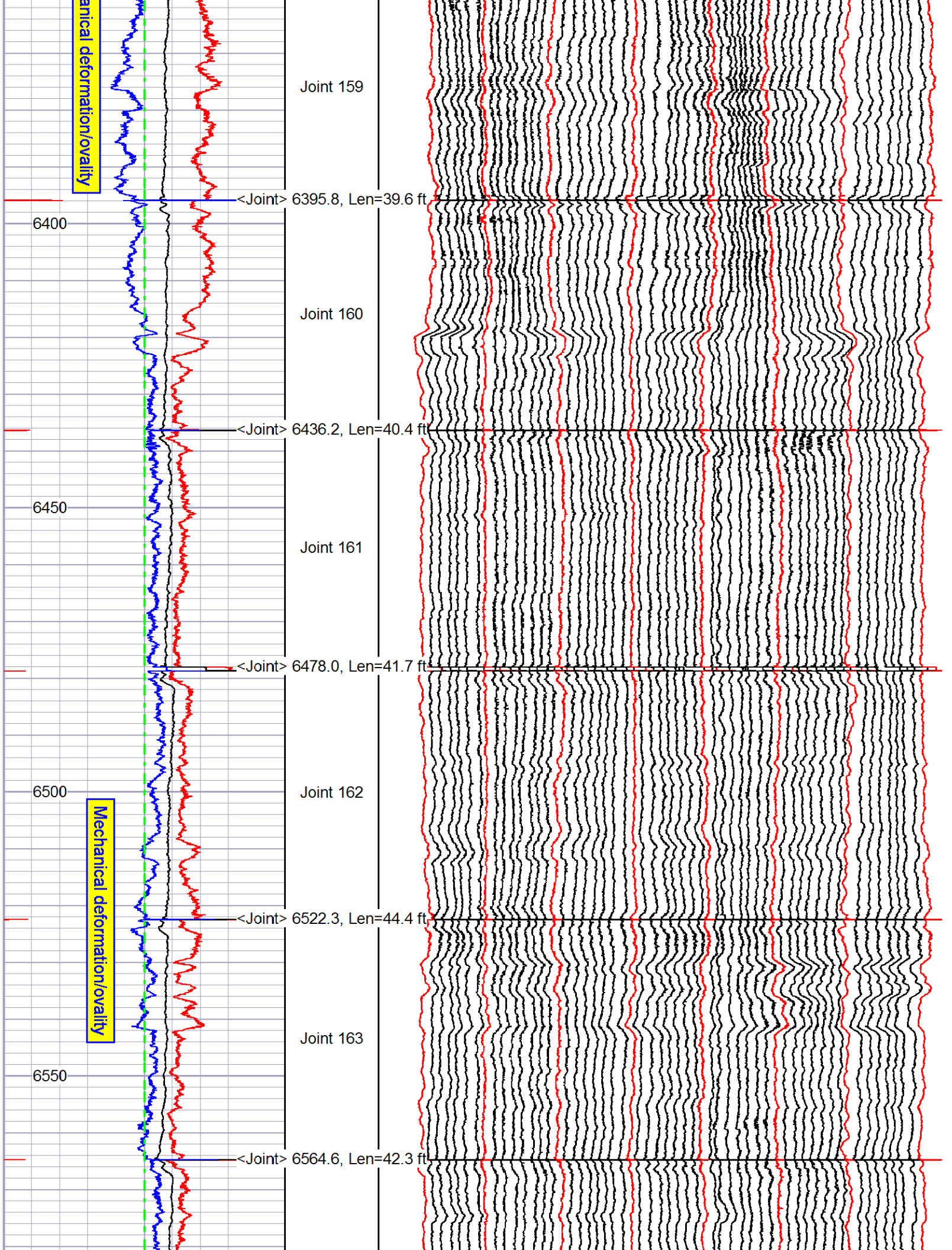

ormation/ovality
Joint 132
5300
<Joint> 5298.4, Len=40.6 ft
Joint 133
<Joint> 5340.0, Len=41.7 ft
5350
Joint 134
<Joint> 5380.5, Len=40.5 ft
Mechanical deformation/ovality
5400
Joint 135
<Joint> 5422.6, Len=42.1 ft
Joint 136
5450
<Joint> 5464.2, Len=41.6 ft

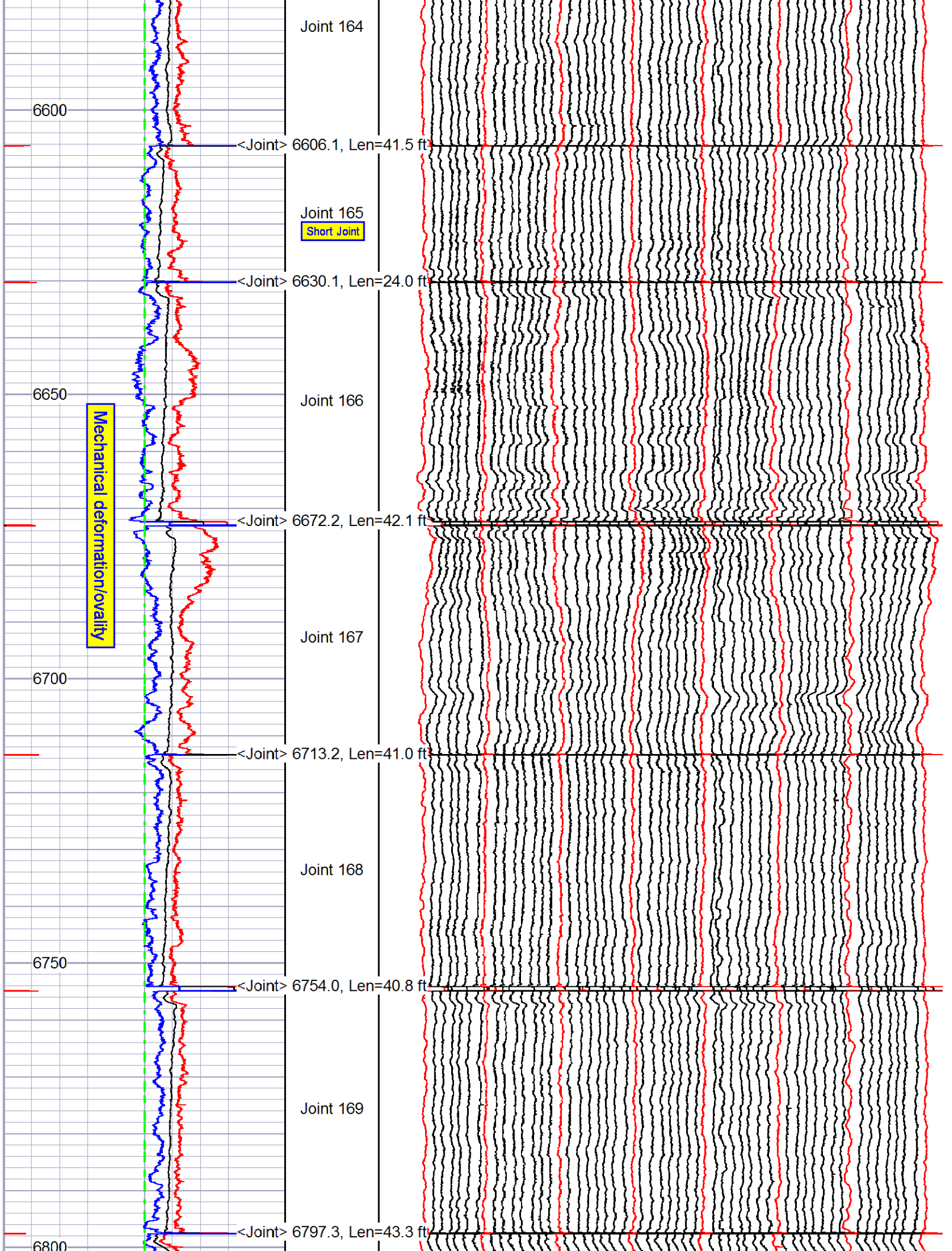

Joint 137
5500
<Joint> 5505.2, Len=41.0 ft
Joint 138
<Joint> 5546.7, Len=41.5 ft
5550
Joint 139
<Joint> 5589.0, Len=42.4 ft
5600
Joint 140
<Joint> 5630.6, Len=41.6 ft
5650
Joint 141
<Joint> 5673.2, Len=42.6 ft
Joint 142
5700

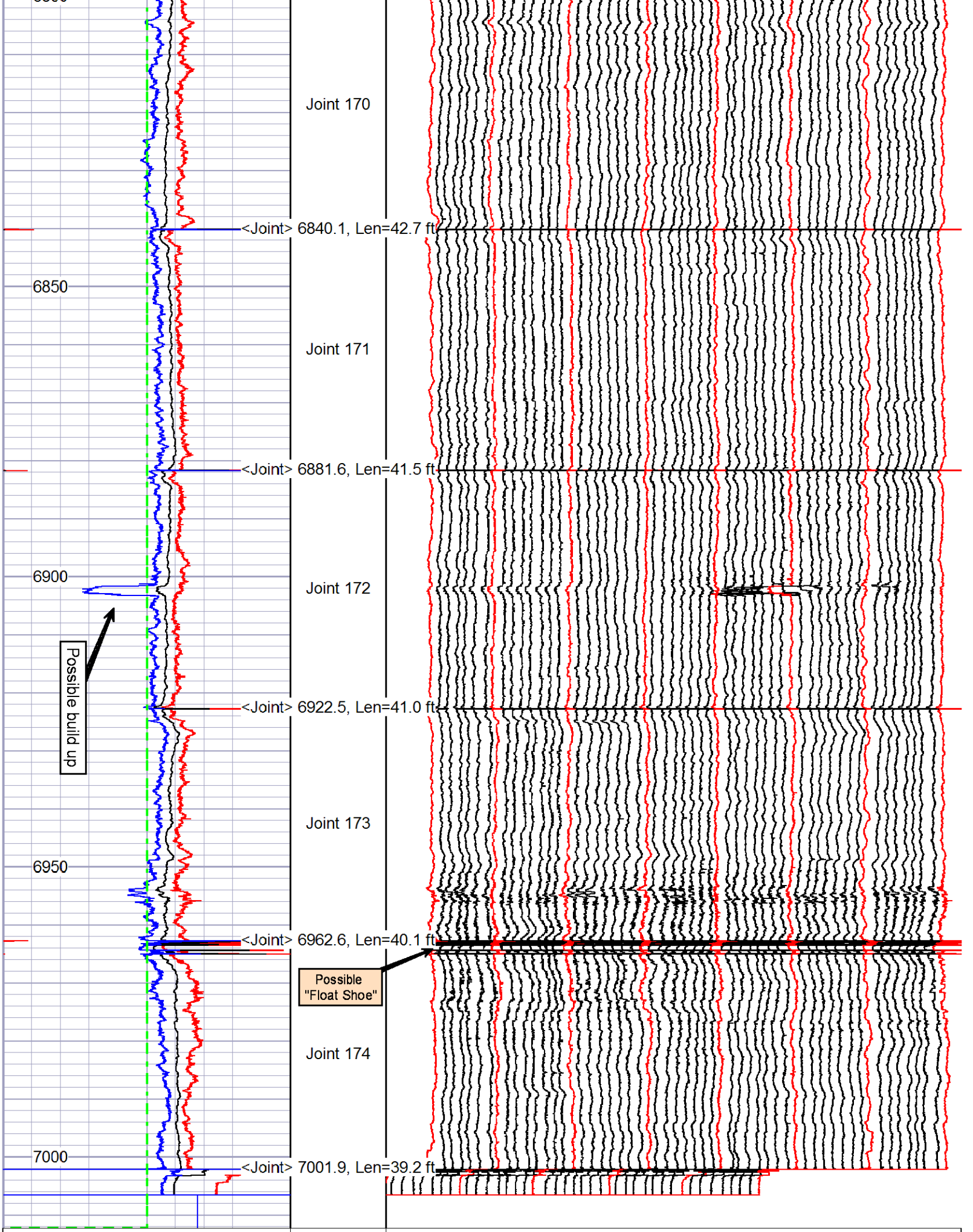

<Joint> 5712.6, Len=39.4 ft
Joint 143
5750
<Joint> 5755.3, Len=42.7 ft
Joint 144
<Joint> 5794.0, Len=38.7 ft
5800
Joint 145
<Joint> 5831.2, Len=37.2 ft
5850
Joint 146
<Joint> 5869.2, Len=38.0 ft
Joint 147
5900
<Joint> 5912.9, Len=43.7 ft


Joint 148
<Joint> 5948.3, Len=35.4 ft
5950
Joint 149
<Joint> 5990.1, Len=41.8 ft
6000
Joint 150
Mechanical deformation/ovality
<Joint> 6031.1, Len=41.0 ft
6050
Joint 151
<Joint> 6072.1, Len=40.9 ft
Joint 152
6100
<Joint> 6113.2, Len=41.2 ft
Joint 153


Mechanical deformation/ovality
6150
<Joint> 6154.9, Len=41.7 ft
Joint 154
<Joint> 6196.1, Len=41.2 ft
6200
Joint 155
<Joint> 6238.3, Len=42.2 ft
6250
Joint 156
<Joint> 6274.5, Len=36.2 ft
Joint 157
6300
<Joint> 6313.3, Len=38.8 ft
Joint 158
6350
<Joint> 6356.1, Len=42.9 ft


anical deformation/ovality
Joint 159
<Joint> 6395.8, Len=39.6 ft
6400
Joint 160
<Joint> 6436.2, Len=40.4 ft
6450
Joint 161
<Joint> 6478.0, Len=41.7 ft
6500
Joint 162
<Joint> 6522.3, Len=44.4 ft
Mechanical deformation/ovality
Joint 163
6550
<Joint> 6564.6, Len=42.3 ft


Joint 164
6600
<Joint> 6606.1, Len=41.5 ft
Joint 165
Short Joint
<Joint> 6630.1, Len=24.0 ft
6650
Joint 166
Mechanical deformation/ovality
<Joint> 6672.2, Len=42.1 ft
Joint 167
6700
<Joint> 6713.2, Len=41.0 ft
Joint 168
6750
<Joint> 6754.0, Len=40.8 ft
Joint 169
<Joint> 6797.3, Len=43.3 ft
6800



7.325	Maximum-Finger (in)	8.325	PTANN	56 FINGER TRACE
7.325	Average-Finger (in)	8.325		

7.325	Minimum-Finger (in)	8.325
7.325	Nominal ID (in)	8.325

Calibration Report

Database File ff35a_ical.db
Dataset Pathname ALISO_CANYON/FF35A/run1/pass15
Dataset Creation Sat Aug 13 16:28:28 2016

GOWell 56 Arm Calibration Report

Serial Number: 10111
Tool Model: 56
Performed: Sat Aug 13 06:53:10 2016

Ref ID:	6.00	7.00	8.00	9.00	9.63	Offset	in
Arm1	6.00	7.00	7.99	8.98	9.62	0.00	in
Arm2	6.02	7.04	8.04	9.02	9.66	0.00	in
Arm3	6.07	7.10	8.12	9.07	9.83	0.00	in
Arm4	6.02	7.12	8.14	9.04	9.70	0.00	in
Arm5	6.03	7.04	8.03	9.00	9.65	0.00	in
Arm6	6.01	7.02	8.02	9.01	9.66	0.00	in
Arm7	6.08	7.08	8.08	9.05	9.65	0.00	in
Arm8	6.06	7.08	8.08	9.06	9.70	0.00	in
Arm9	6.06	7.16	8.13	9.07	9.76	0.00	in
Arm10	6.08	7.08	8.07	9.05	9.69	0.00	in
Arm11	6.09	7.09	8.09	9.03	9.69	0.00	in
Arm12	6.12	7.13	8.14	9.08	9.71	0.00	in
Arm13	6.06	7.08	8.11	9.05	9.67	0.00	in
Arm14	6.04	7.06	8.06	9.04	9.67	0.00	in
Arm15	6.06	7.10	8.11	9.07	9.71	0.00	in
Arm16	6.07	7.07	8.07	9.03	9.66	0.00	in
Arm17	6.02	7.05	8.09	9.02	9.65	0.00	in
Arm18	6.08	7.09	8.12	9.04	9.66	0.00	in
Arm19	6.06	7.07	8.10	9.04	9.67	0.00	in
Arm20	6.06	7.07	8.09	9.03	9.66	0.00	in
Arm21	6.02	7.04	8.05	9.04	9.67	0.00	in
Arm22	6.07	7.12	8.14	9.03	9.64	0.00	in
Arm23	6.07	7.12	8.15	9.05	9.65	0.00	in
Arm24	6.08	7.08	8.08	9.05	9.66	0.00	in
Arm25	6.03	7.02	8.03	9.01	9.63	0.00	in
Arm26	6.13	7.13	8.13	9.10	9.69	0.00	in
Arm27	5.98	7.00	8.02	8.98	9.57	0.00	in
Arm28	6.02	7.01	8.01	9.00	9.61	0.00	in
Arm29	5.97	6.98	8.00	8.98	9.59	0.00	in
Arm30	6.00	7.01	8.03	8.98	9.59	0.00	in

* Bad

GOWell 56 Arm Calibration Report

Serial Number:
Tool Model:
Performed:

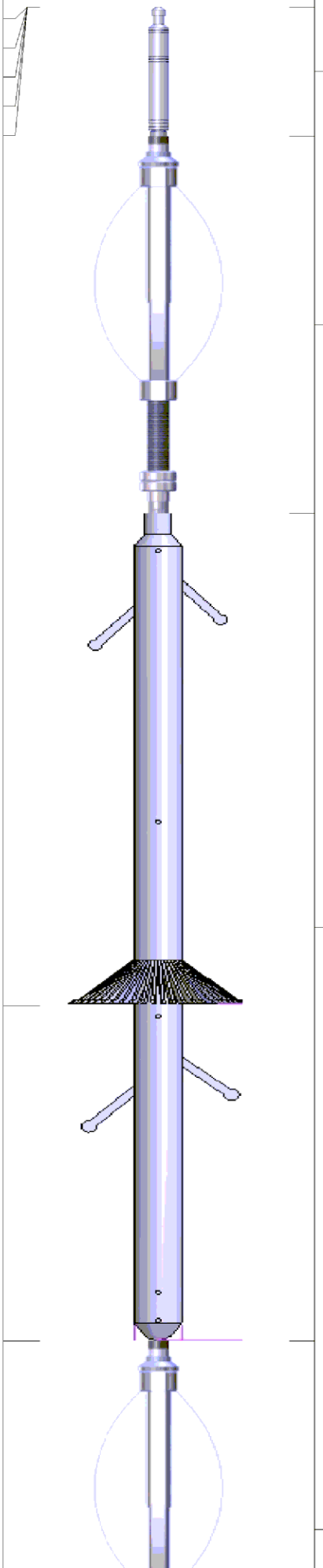
Ref ID:	6.00	7.00	8.00	9.00	9.63	Offset	in
Arm31	6.02	7.02	8.02	9.01	9.61	0.00	in
Arm32	6.01	7.04	8.08	8.99	9.61	0.00	in
Arm33	6.01	7.01	8.02	9.00	9.60	0.00	in
Arm34	6.01	7.01	8.02	8.99	9.61	0.00	in
Arm35	6.00	7.03	8.07	9.01	9.62	0.00	in
Arm36	6.02	7.04	8.03	8.99	9.60	0.00	in
Arm37	5.98	7.01	8.00	8.96	9.59	0.00	in

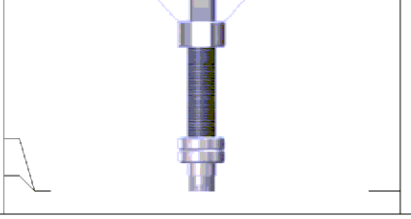
Arm38	6.01	7.02	8.02	9.02	9.63	0.00	in
Arm39	5.98	6.99	7.99	8.99	9.59	0.00	in
Arm40	6.00	7.00	8.01	9.01	9.62	0.00	in
Arm41	5.97	6.98	7.98	8.99	9.59	0.00	in
Arm42	6.07	7.09	8.10	9.10	9.71	0.00	in
Arm43	5.98	6.99	7.99	8.99	9.60	0.00	in
Arm44	5.99	7.01	8.02	9.04	9.64	0.00	in
Arm45	5.98	6.98	7.97	8.98	9.59	0.00	in
Arm46	6.00	7.00	8.00	8.98	9.62	0.00	in
Arm47	5.99	6.99	7.99	9.00	9.61	0.00	in
Arm48	6.01	7.01	8.01	9.01	9.62	0.00	in
Arm49	5.99	7.00	8.00	8.99	9.62	0.00	in
Arm50	6.02	7.02	8.01	9.00	9.63	0.00	in
Arm51	5.91	6.92	7.92	8.91	9.55	0.00	in
Arm52	5.99	7.01	8.01	9.02	9.65	0.00	in
Arm53	6.00	7.00	7.99	8.98	9.61	0.00	in
Arm54	6.00	7.02	8.02	9.01	9.65	0.00	in
Arm55	6.02	7.03	8.02	9.01	9.65	0.00	in
Arm56	6.04	7.14	8.12	8.98	9.67	0.00	in
Arm57							in
Arm58							in
Arm59							in
Arm60							in

* Bad

GOWell 56 Arm Verification Report

	Pre Verification	Post Verification	Casing Check	
Performed:	Sat Aug 13 06:55:03 2016	Sat Aug 13 16:28:07 2016	Sat Aug 13 16:19:50 2016	
Ref ID:	8.00	8.00	7.83	in
Min.	7.98	7.96	7.80	in
Max.	8.01	8.02	7.88	in
Avg.	8.00	8.00	7.84	in
Dia1	7.99	8.00	7.84	in
Dia2	7.99	8.01	7.85	in
Dia3	8.00	8.00	7.83	in
Dia4	8.01	8.02	7.88	in
Dia5	8.00	8.01	7.84	in
Dia6	8.00	8.01	7.83	in
Dia7	7.99	8.00	7.82	in
Dia8	8.00	8.00	7.83	in
Dia9	7.98	7.96	7.80	in
Dia10	8.00	8.01	7.84	in
Dia11	8.00	8.00	7.83	in
Dia12	8.00	8.01	7.85	in
Dia13	8.00	8.01	7.84	in
Dia14	8.00	8.00	7.84	in
Dia15	7.99	8.00	7.84	in
Dia16	8.00	8.00	7.84	in
Dia17	8.00	8.01	7.85	in
Dia18	7.98	8.00	7.86	in
Dia19	7.99	8.01	7.84	in
Dia20	8.00	8.01	7.84	in
Dia21	8.00	8.01	7.83	in
Dia22	8.00	8.02	7.85	in
Dia23	7.99	8.01	7.84	in
Dia24	8.00	8.00	7.84	in
Dia25	8.00	7.99	7.85	in
Dia26	7.99	7.99	7.84	in
Dia27	8.00	8.01	7.85	in
Dia28	7.99	7.97	7.82	in

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
BPRES	13.61					
PPRES	13.61					
TOTBBL	13.61		CHD-STNDRD Standard Cable Head	1.03	1.45	10.00
PRATE	13.61					
LTENUSR	13.61					
			CENT-3' In-Line 2. 3/4" Probe In-Line Standard GOI Centralizer	3.00	2.75	30.00
			XIPEMAC-56 (10111) Hotwell 56 Arm caliper	6.58	3.50	100.00
Meas	5.67					
Aux1	3.00					
			CENT-3' In-Line 2. 3/4" Probe In-Line Standard GOI Centralizer	3.00	2.75	30.00

LOCTIM UTCTIM	0.00 0.00					

Dataset: ff35a_ical.db: ALISO_CANYON/FF35A/run1/pass4
Total length: 13.61 ft
Total weight: 170.00 lb
O.D.: 3.50 in

BAKER HUGHES

Company	SOUTHERN CALIFORNIA GAS COMPANY	
Well	FERNANDO FEE 35A	
Field	ALISO CANYON	
County	LOS ANGELES	
State	CALIFORNIA	Country