

**Design & Permitting for the Leachate
Treatment Facility Expansion at the
Lee/Hendry Landfill
CN-09-03**

**Lee County Regional
Solid Waste Disposal Facility
Class I Deep Injection Well System**

**Appendix F
Volume 4**

**Drilling and Testing Report
CTL-Logs
February 2012**



Appendix F

IW1 – Geophysical Logs

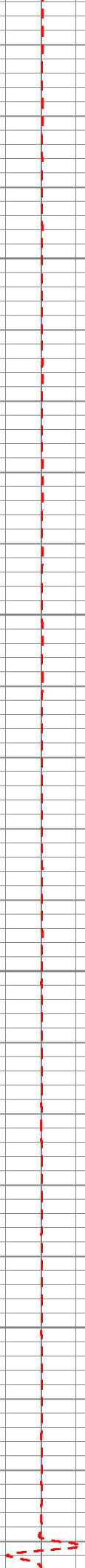


STAGE 1

Database File: leelfiw1.db
 Dataset Pathname: run5/TEMP1
 Presentation Format: temp
 Dataset Creation: Fri Jan 14 21:04:34 2011 by Log Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

-1 DELTA TEMPERATURE (degF) 1	70	TEMPERATURE (degF)	110
	EMPERATUR		
	(degF)		





200

250

300

350

77.9

78.1

78.2

78.3

78.5

78.6

78.8

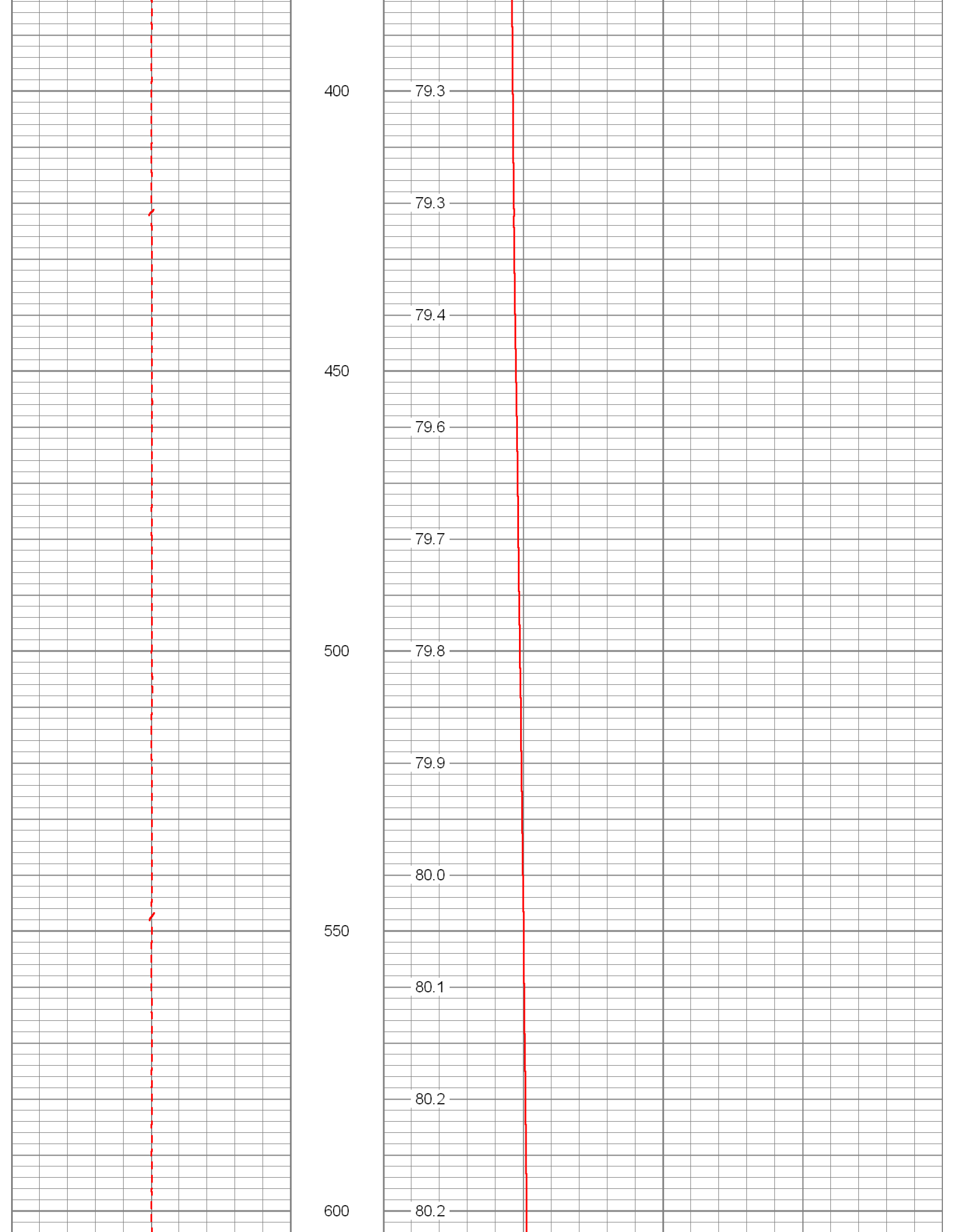
78.9

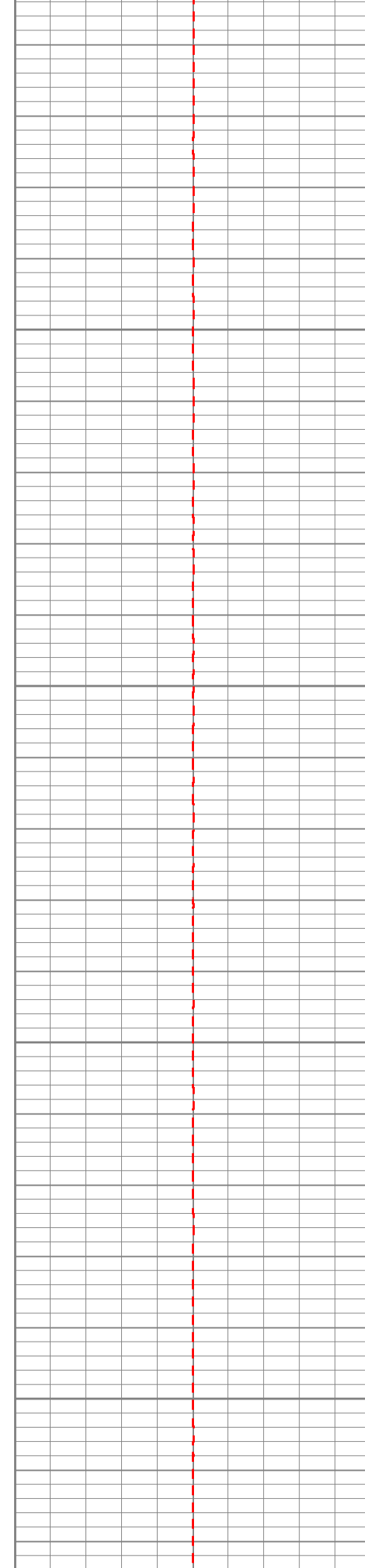
79.0

79.1

79.2







650

700

750

800

80.4

80.4

80.5

80.6

80.7

80.7

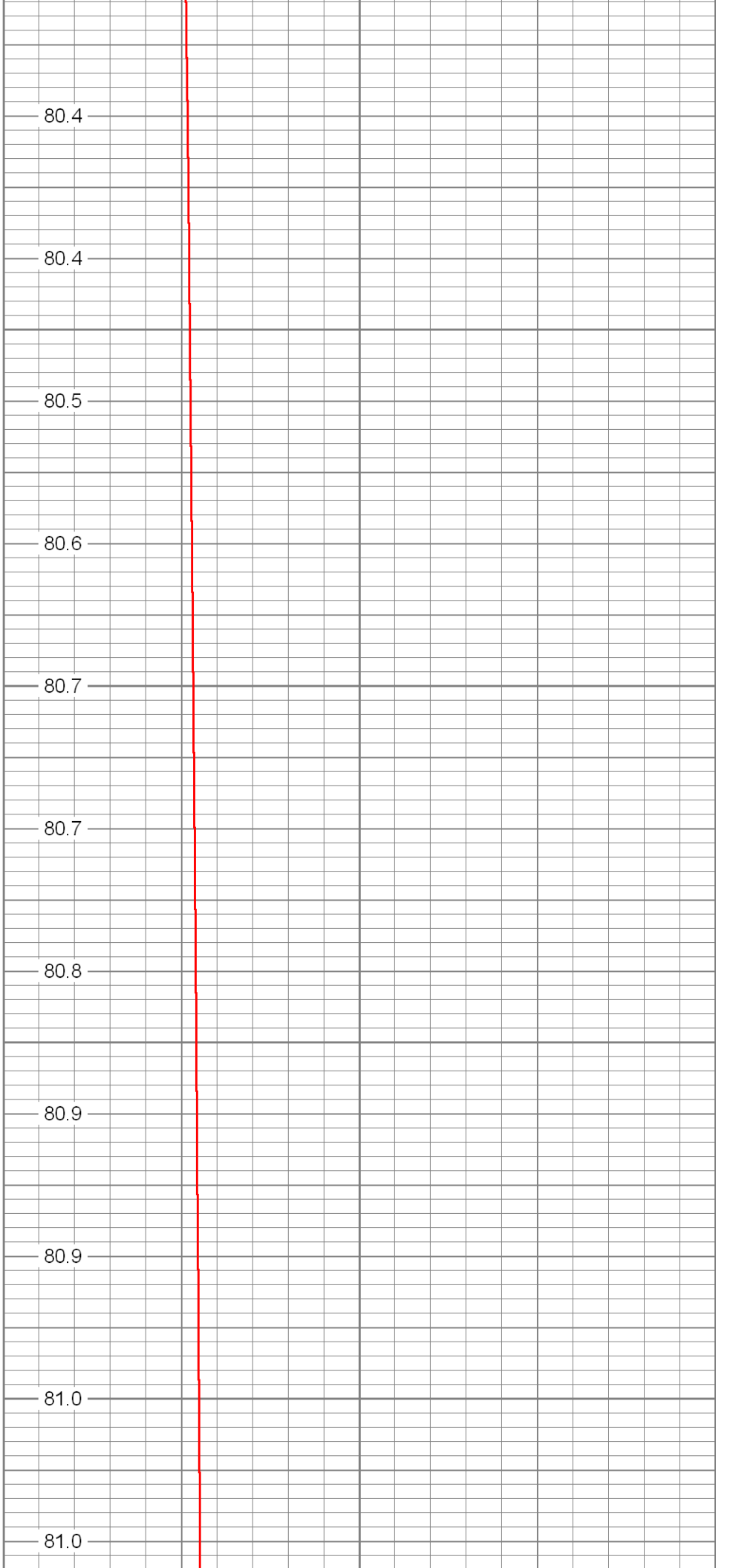
80.8

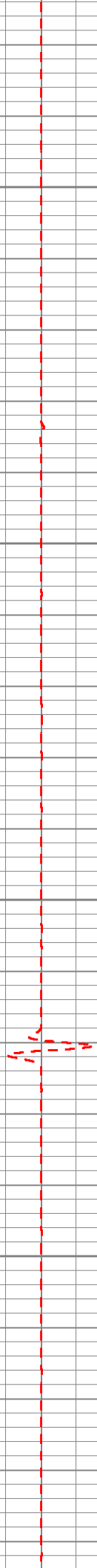
80.9

80.9

81.0

81.0





850

900

950

1000

81.1

81.1

81.2

81.2

81.3

81.4

81.4

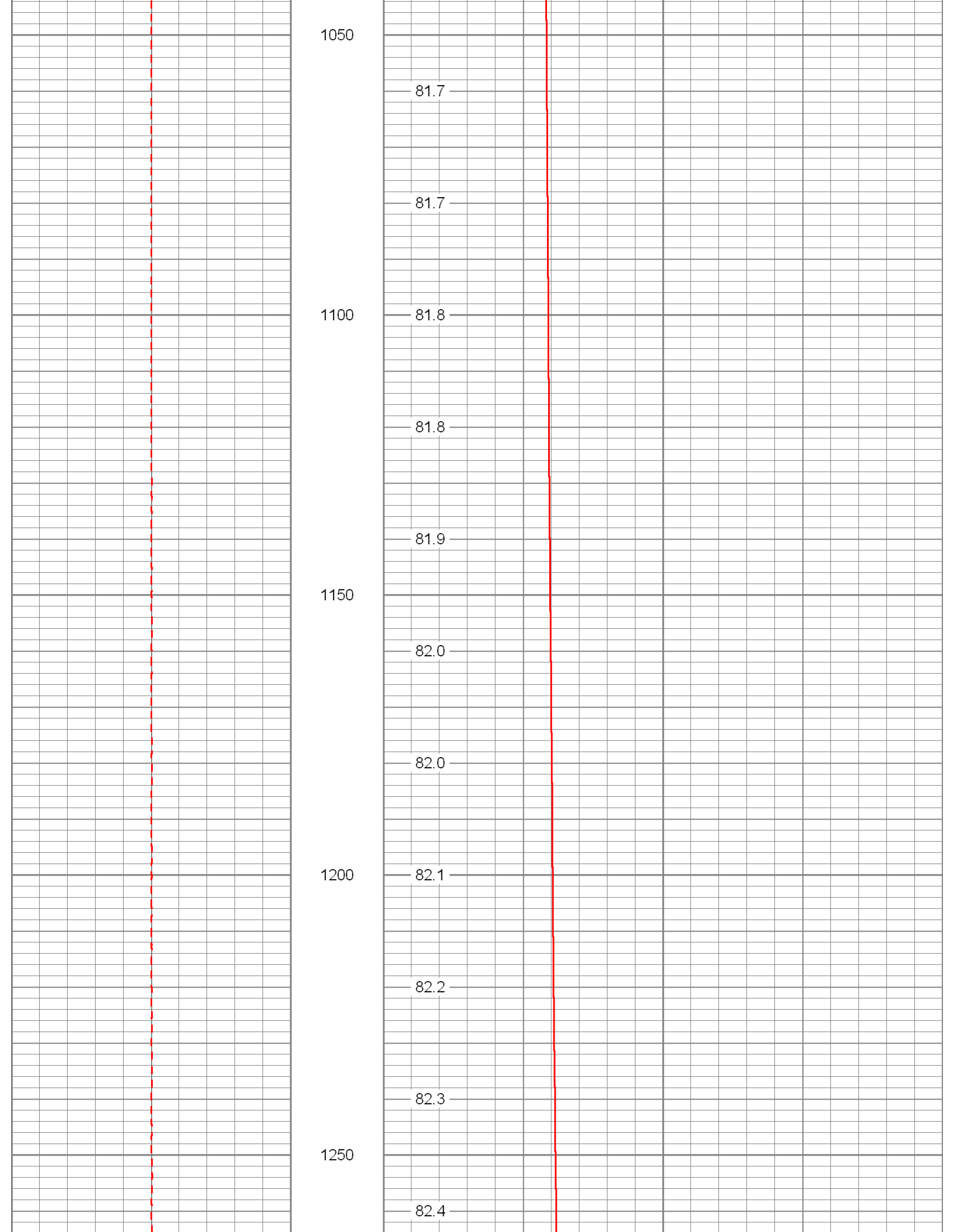
81.5

81.5

81.6

81.6





W

1300

1350

1400

1450

82.5

82.6

82.7

82.7

82.8

82.9

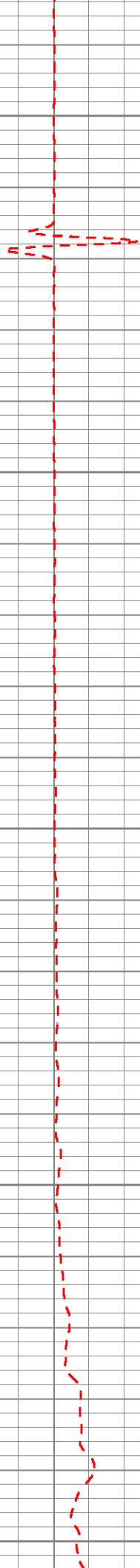
83.0

83.1

83.2

83.3

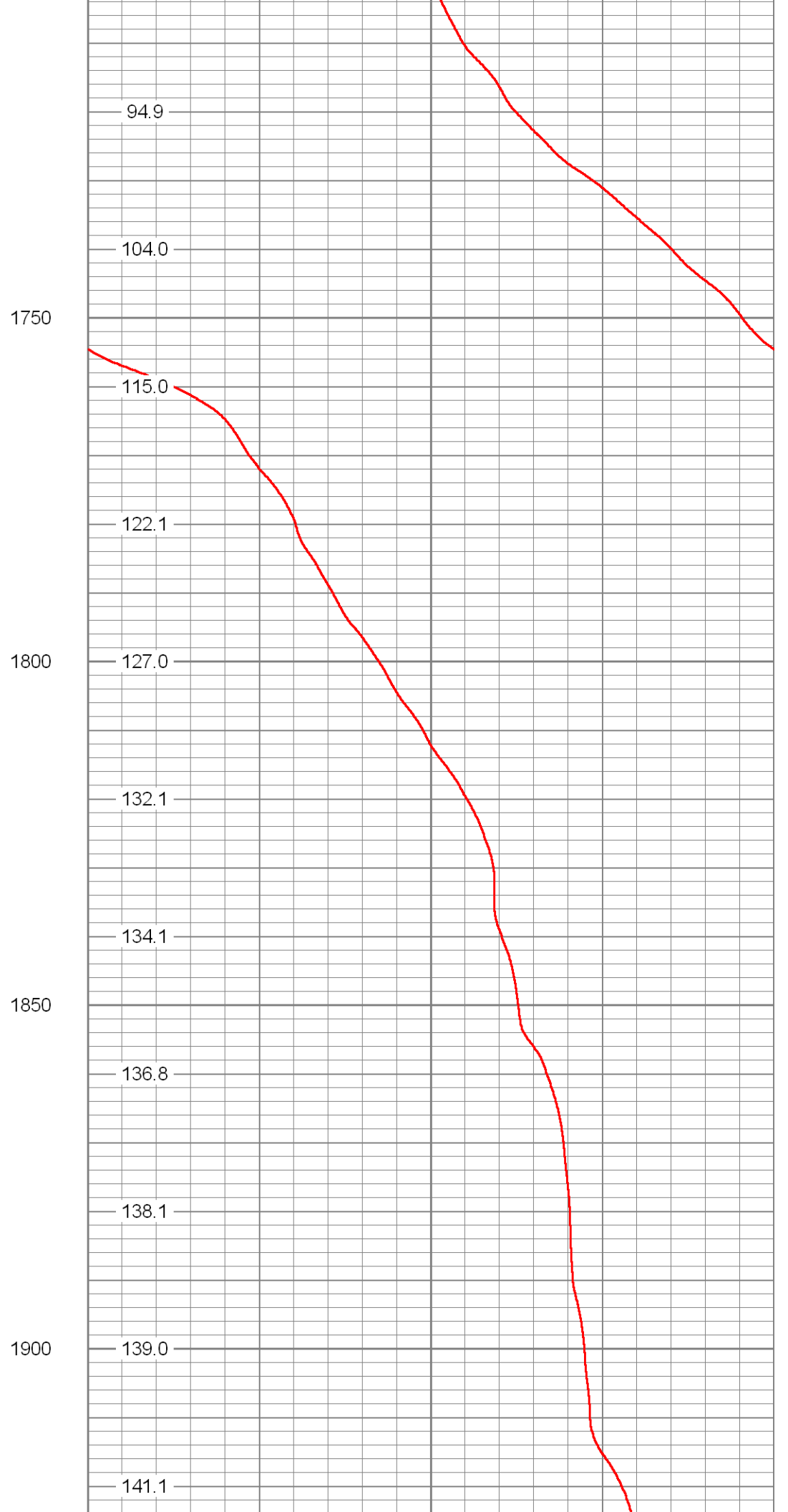
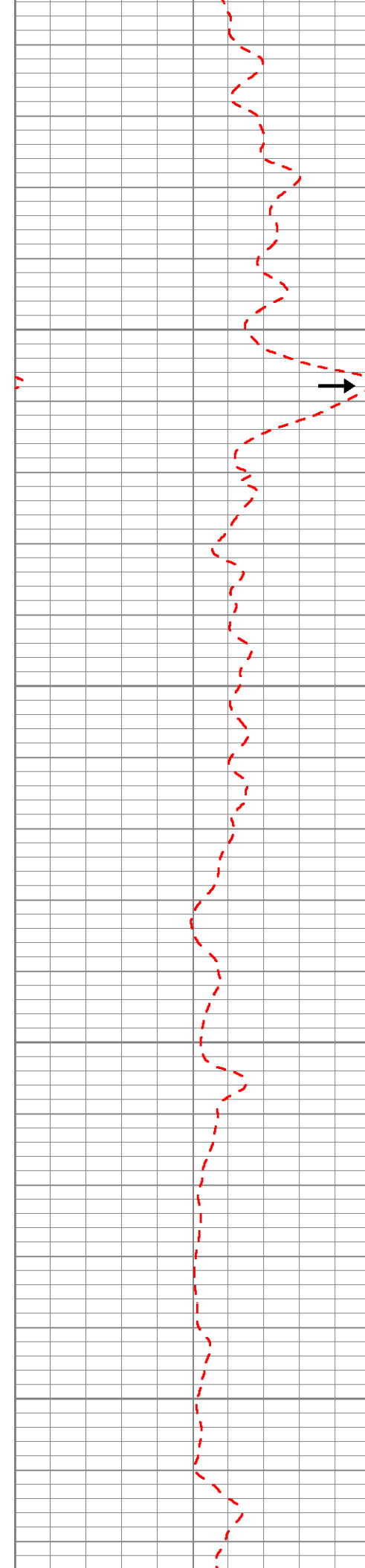
83.3

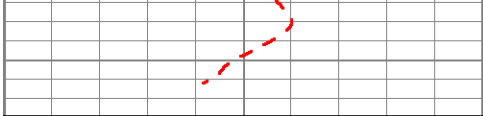


1500
1550
1600
1650
1700

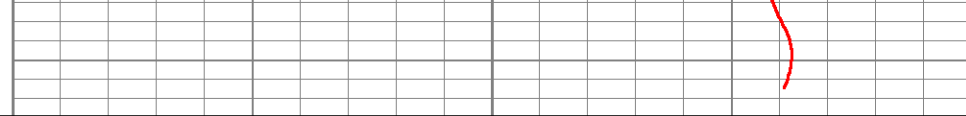
83.4
83.5
83.6
83.7
84.0
84.3
84.7
85.3
86.9
90.1







-1 DELTA TEMPERATURE (degF) 1



70 TEMPERATURE (degF) 110

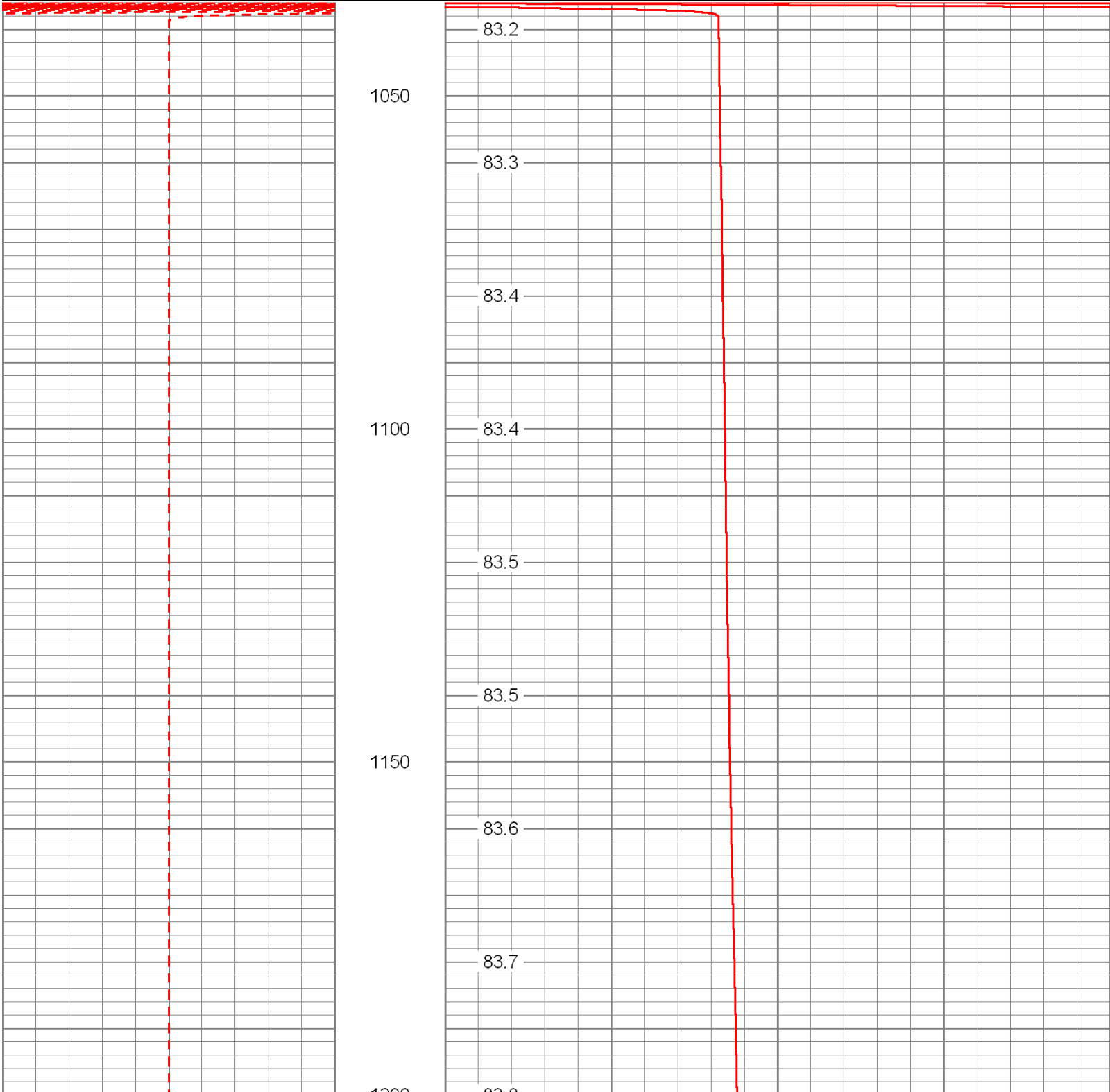
EMPERATUR
(degF)

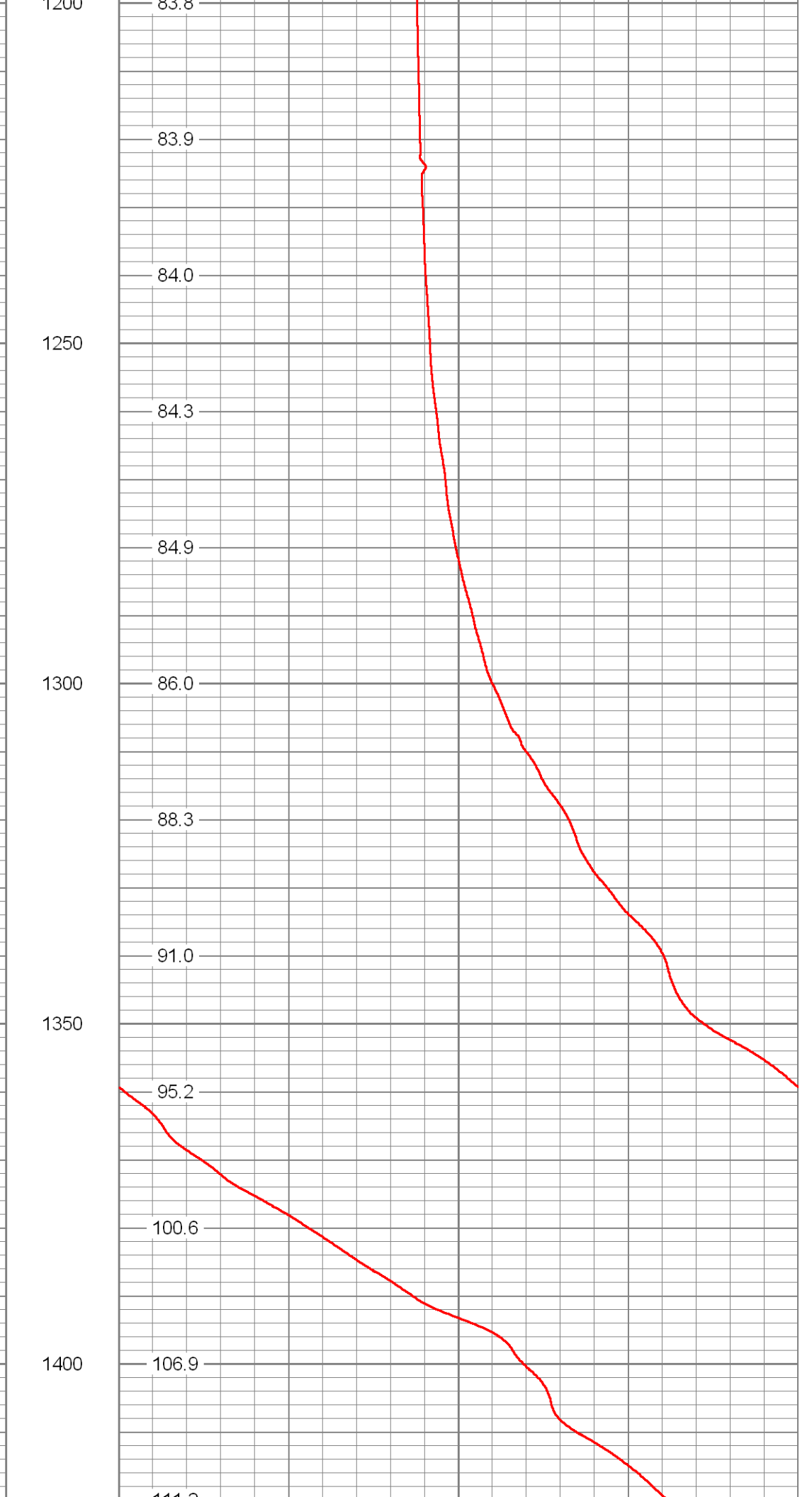
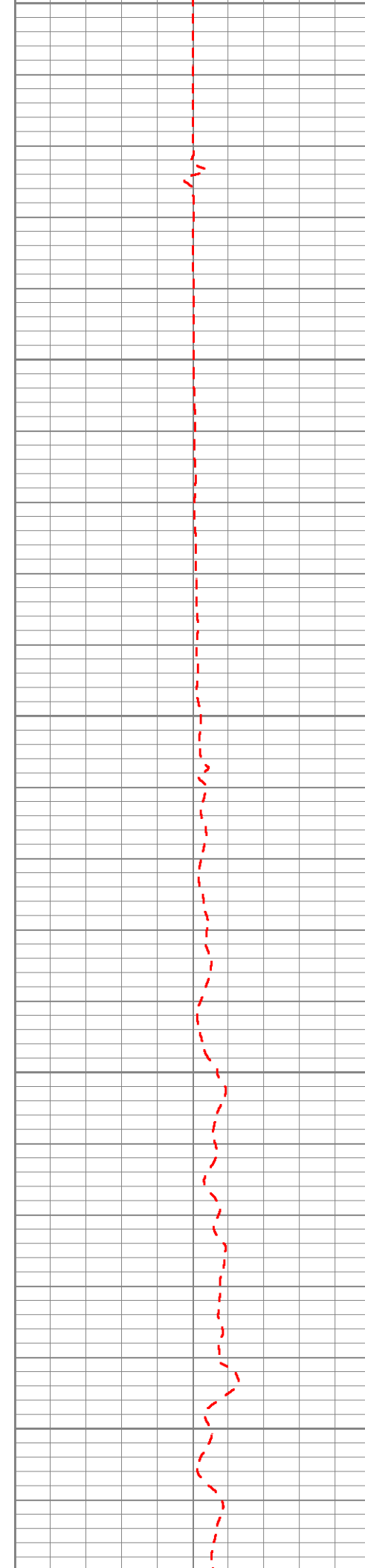


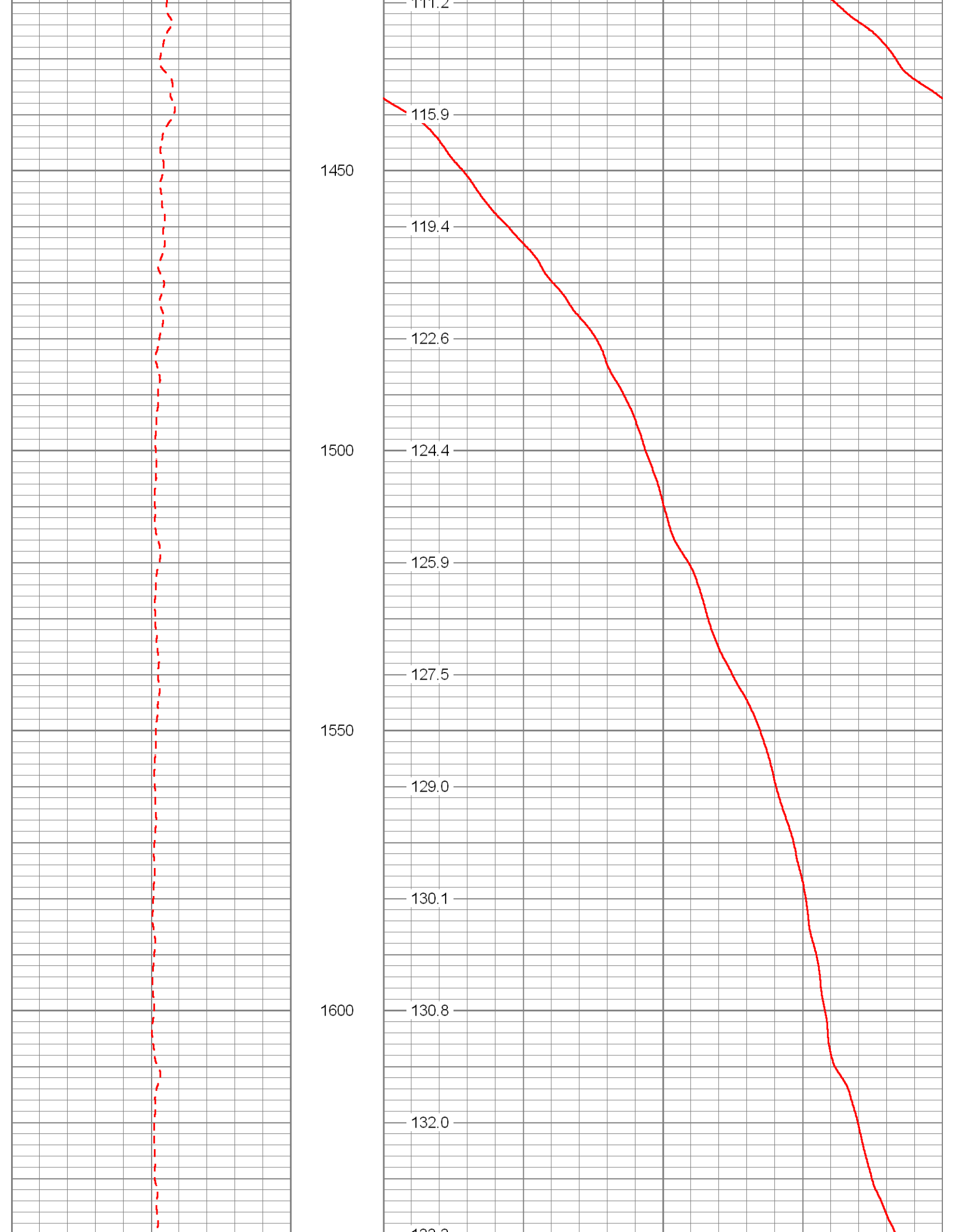
STAGE 2

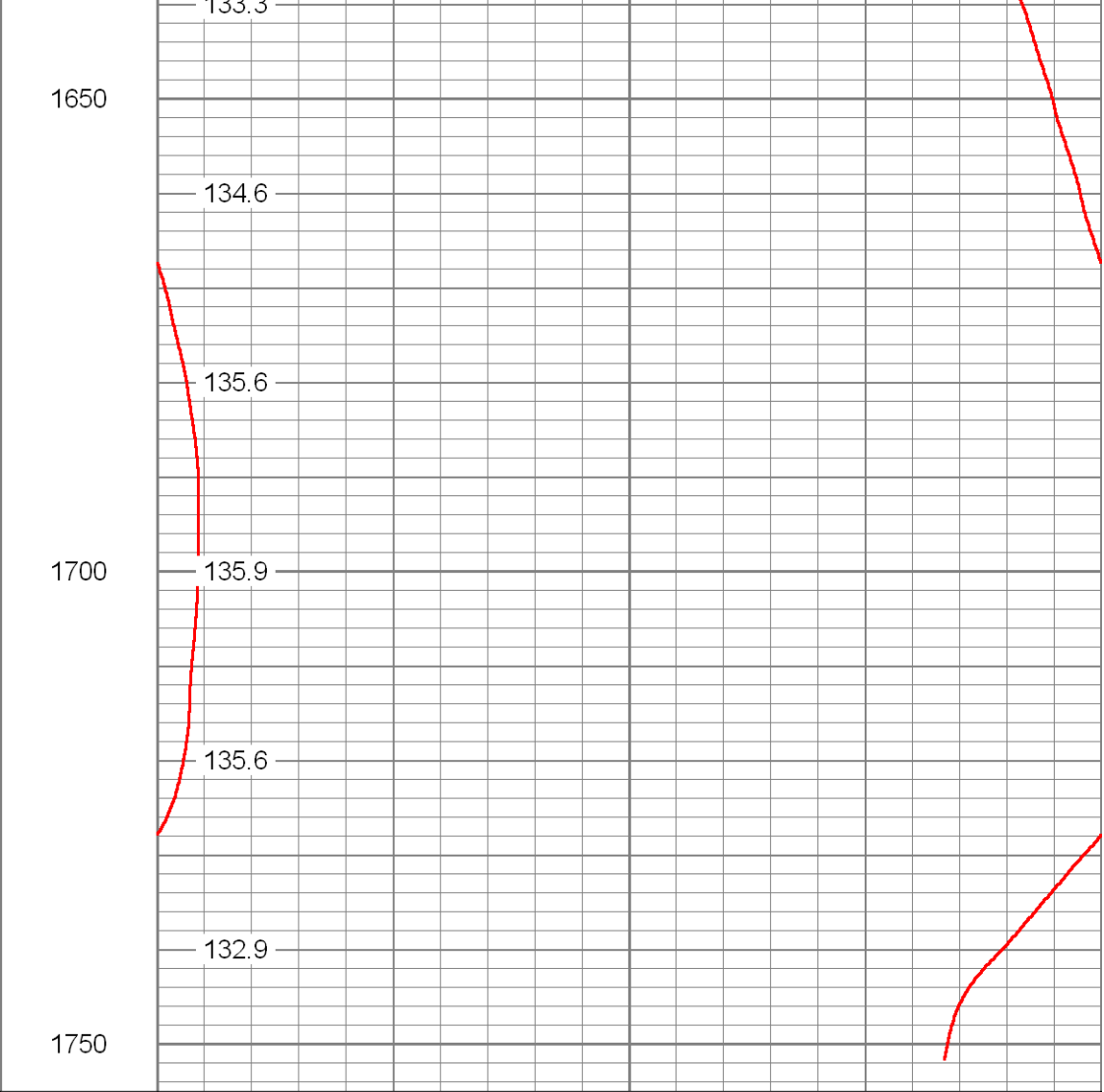
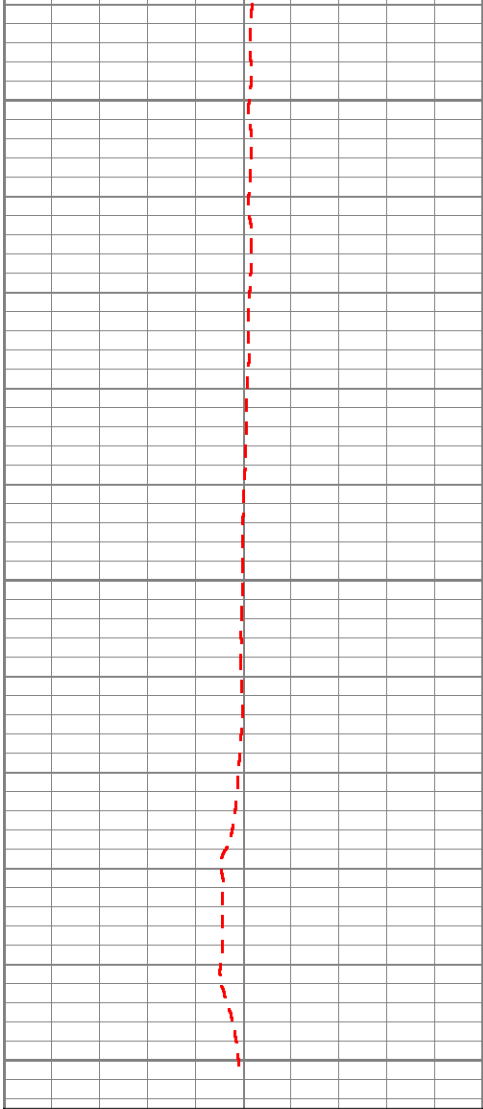
Database File: leelfiw1.db
 Dataset Pathname: run5/TEMP2
 Presentation Format: temp
 Dataset Creation: Sat Jan 15 10:38:44 2011 by Log Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

-2 DELTA TEMPERATURE (degF) 2	75	TEMPERATURE (degF)	95
	TEMPERATUR (degF)		









-2 DELTA TEMPERATURE (degF) 2

75 TEMPERATURE (degF) 95

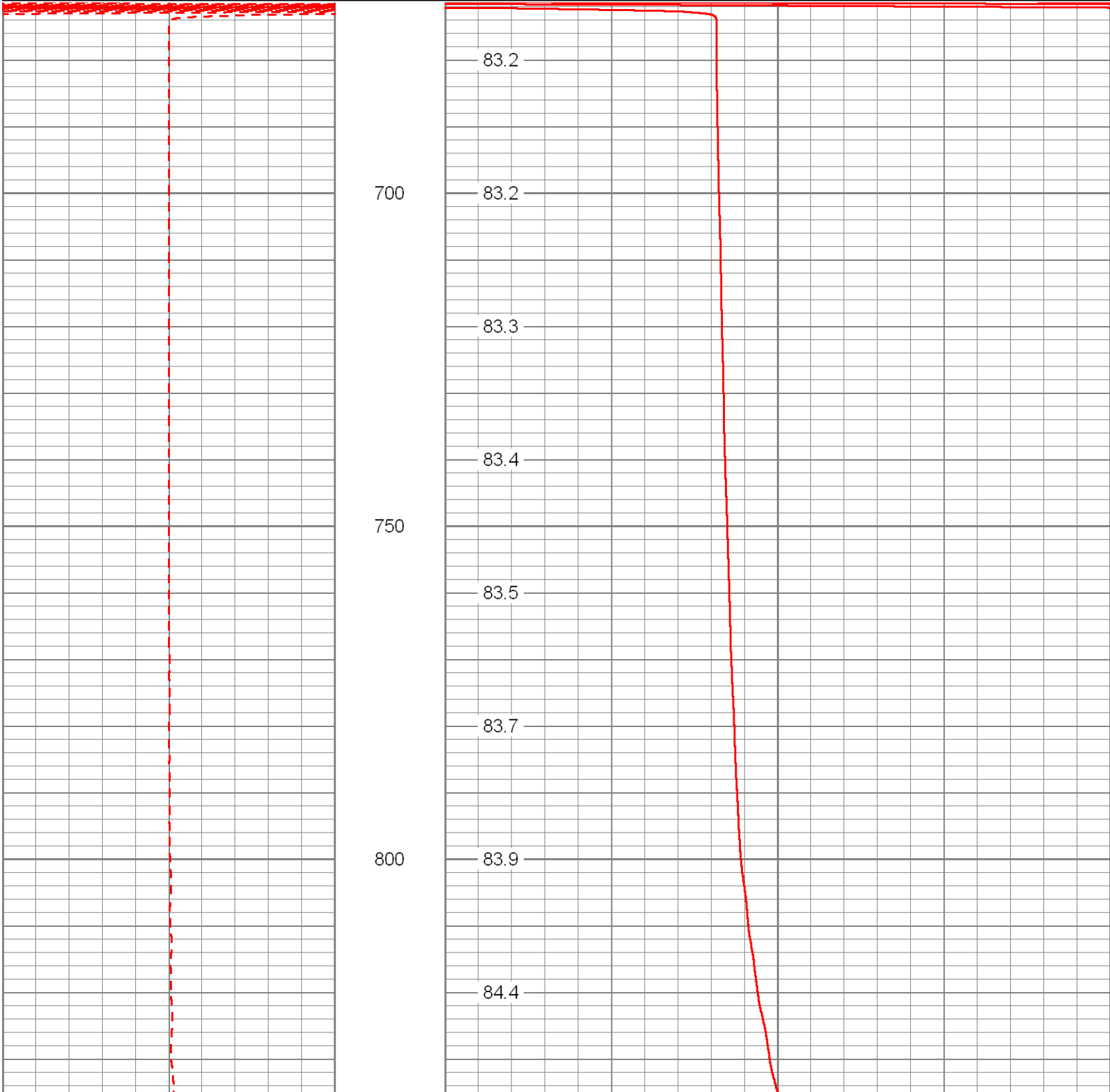
EMPERATUR
(degF)

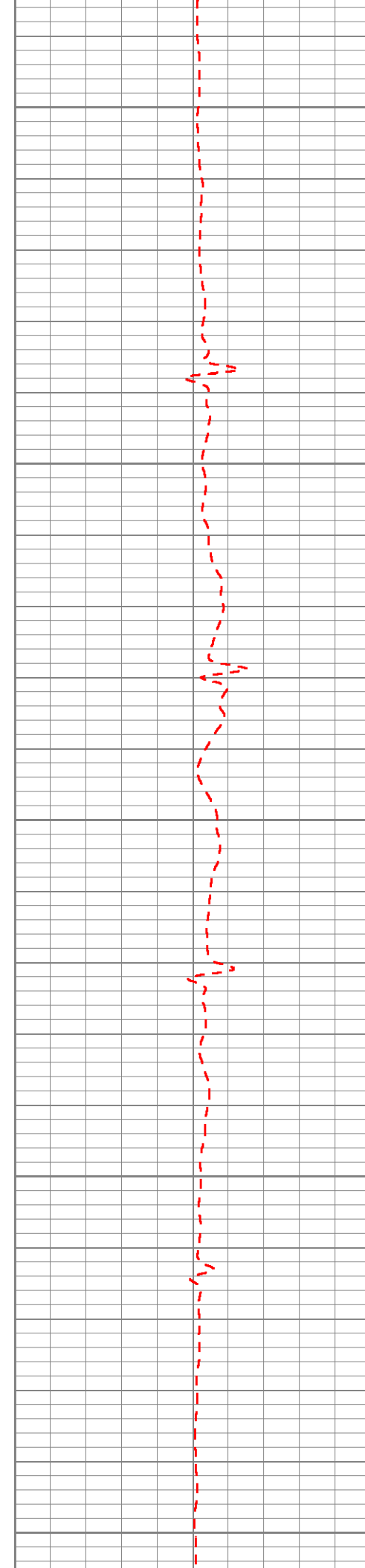


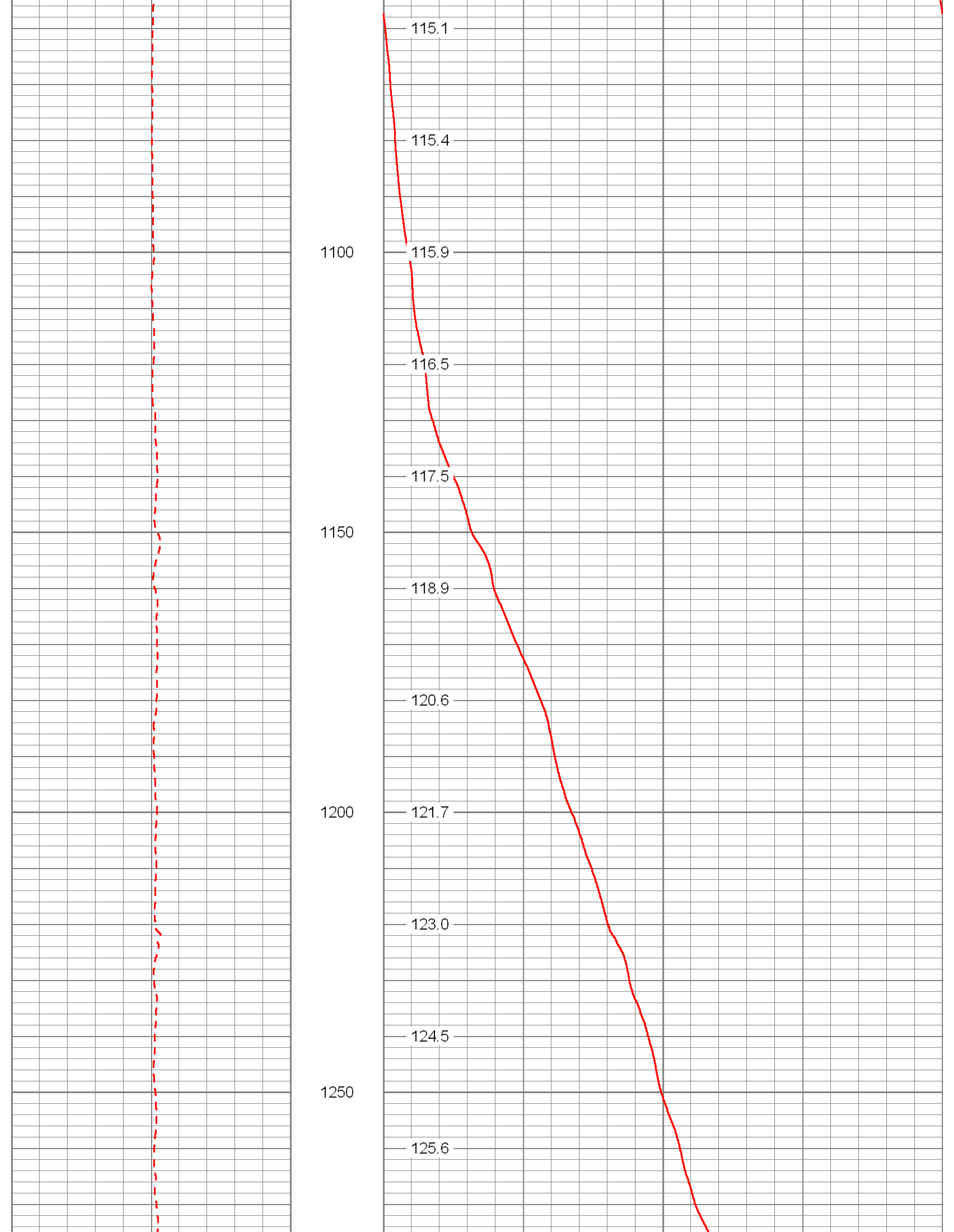
STAGE 3

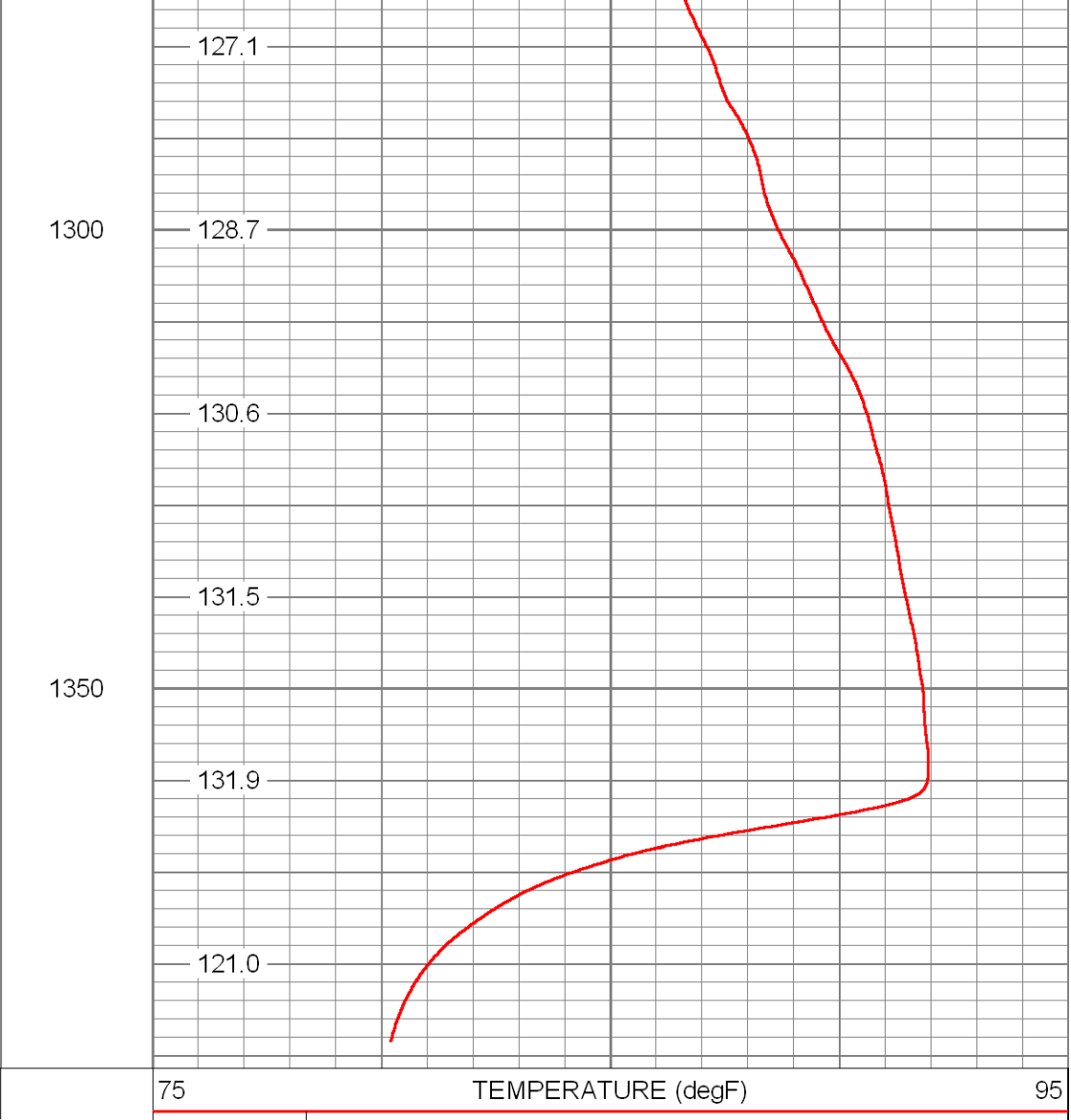
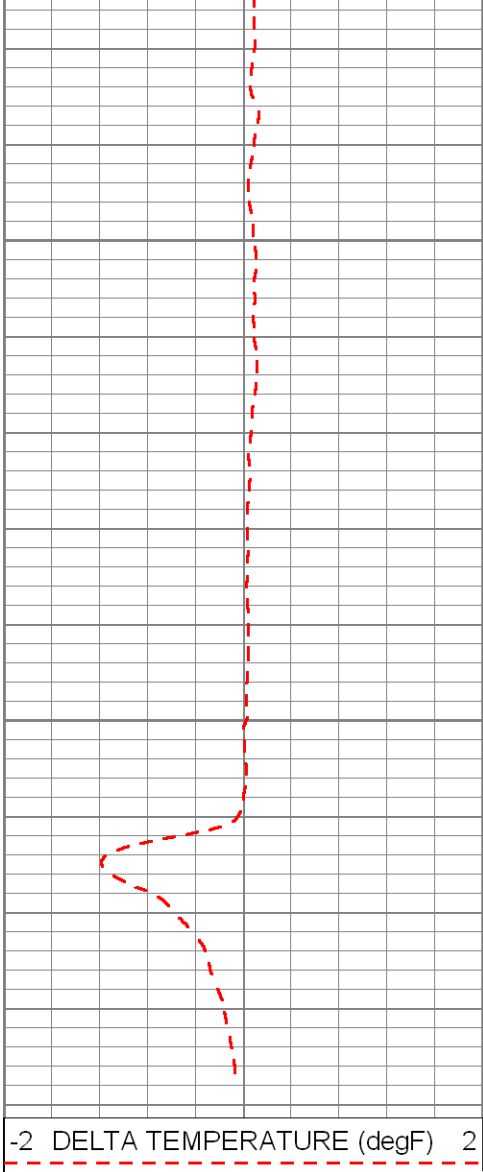
Database File: leelfiw1.db
Dataset Pathname: run5/TEMP3
Presentation Format: temp
Dataset Creation: Sat Jan 15 20:59:25 2011 by Log Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

-2 DELTA TEMPERATURE (degF) 2	75	TEMPERATURE (degF)	95
	TEMPERATUR		
	(degF)		









-2 DELTA TEMPERATURE (degF) 2

75 TEMPERATURE (degF) 95

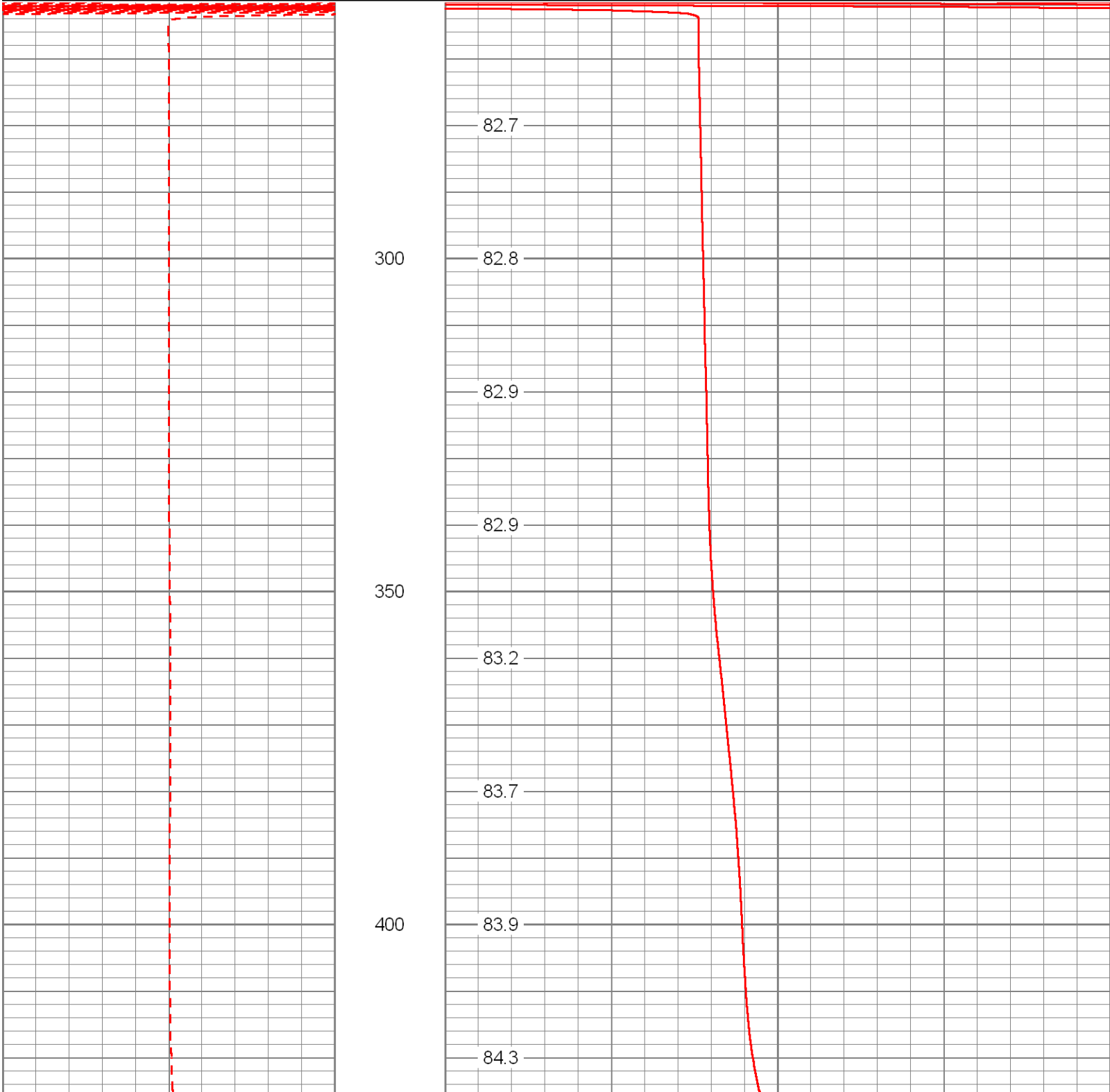
EMPERATUR
(degF)

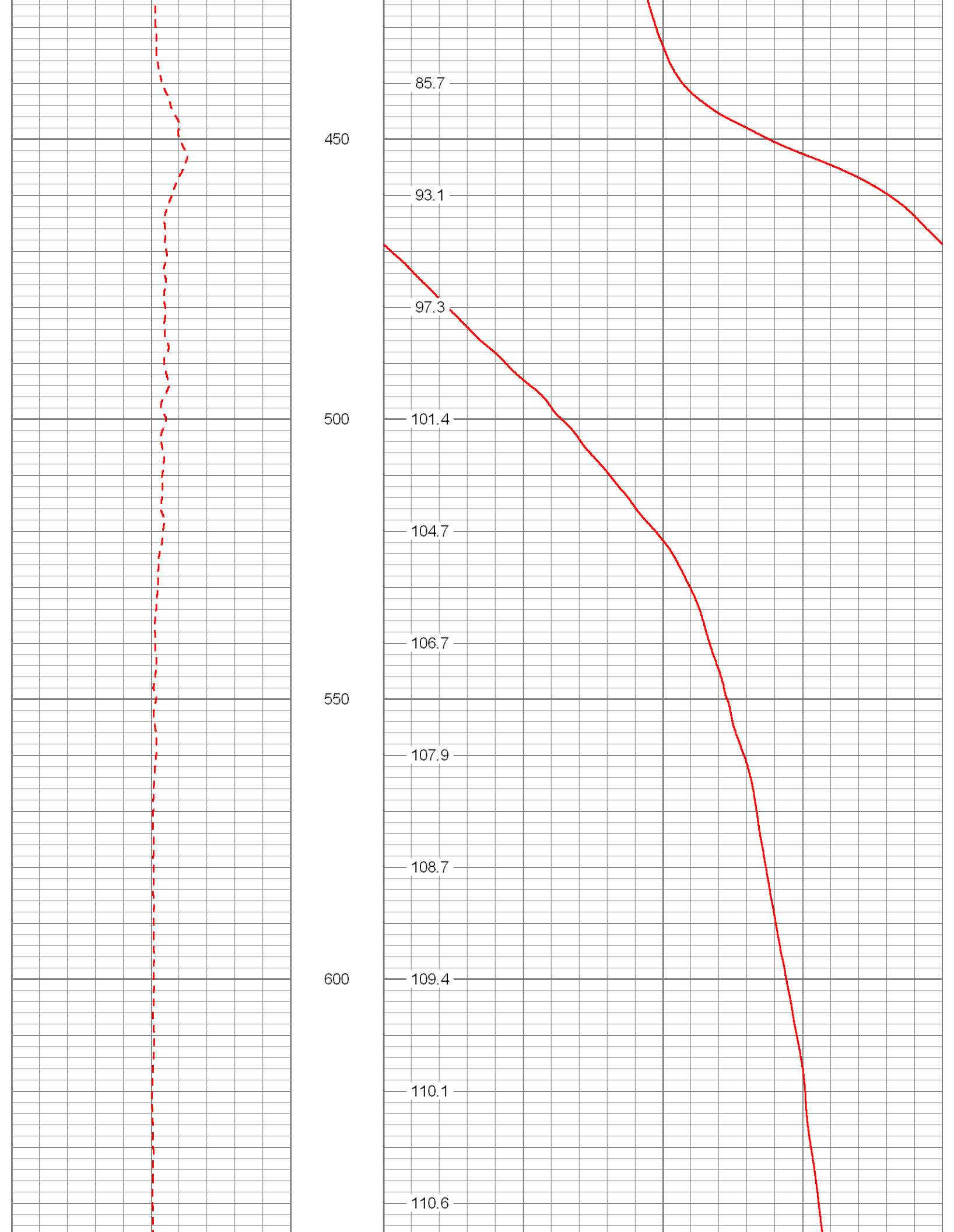


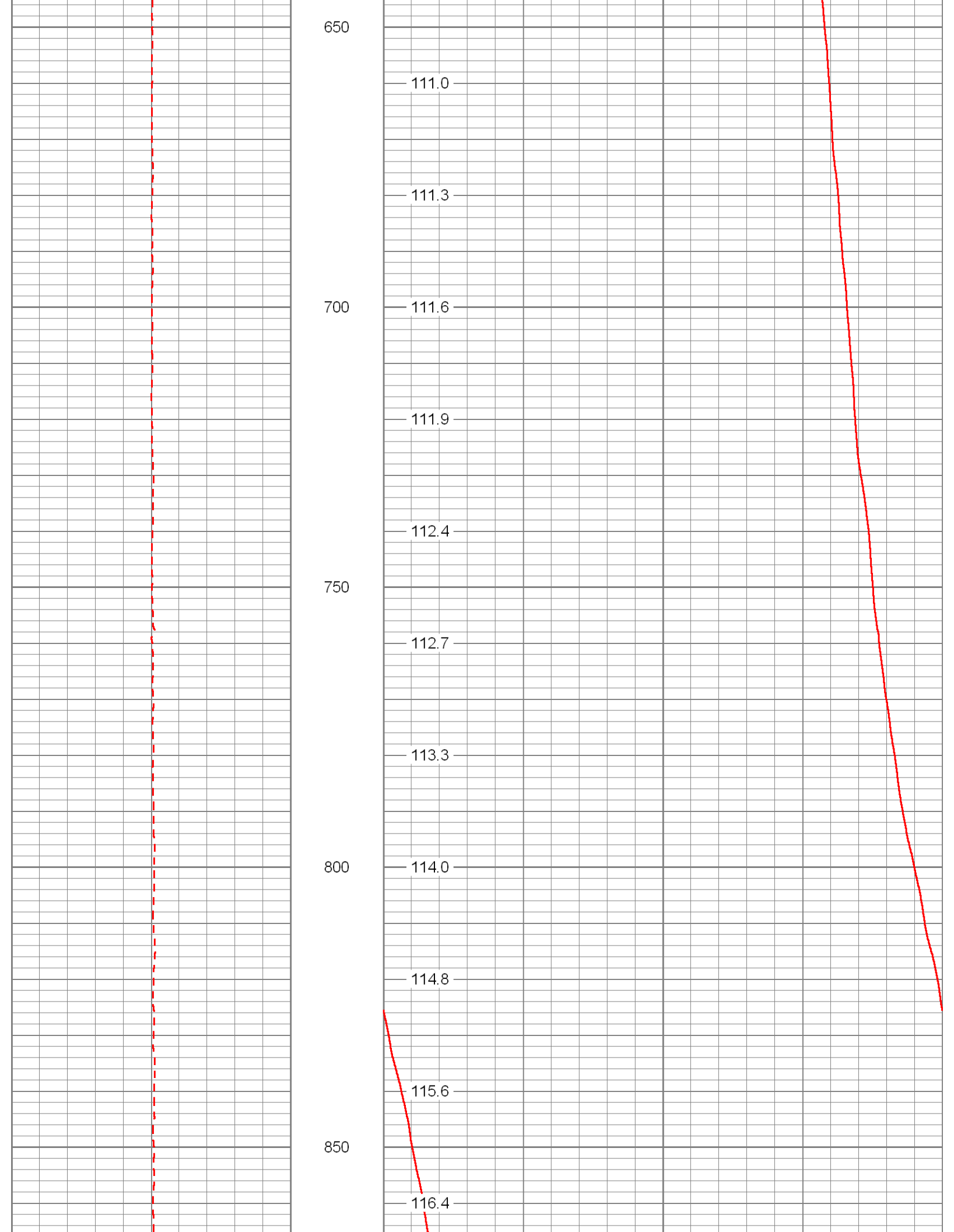
STAGE 4

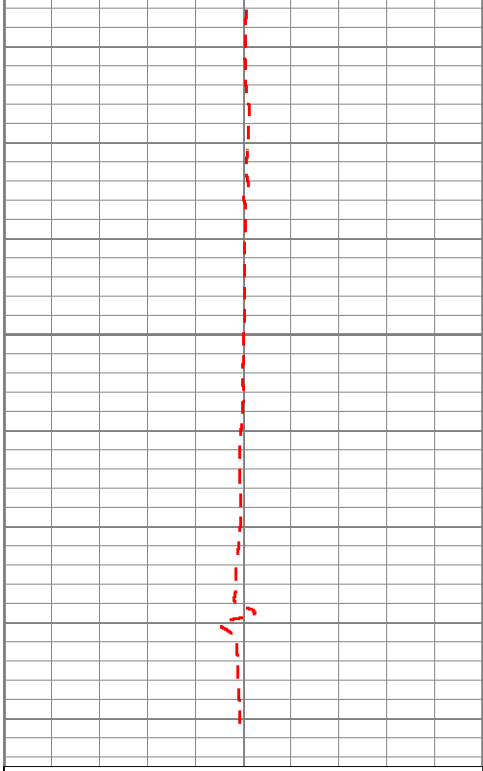
Database File: leelfiw1.db
Dataset Pathname: run5/TEMP4
Presentation Format: temp
Dataset Creation: Sun Jan 16 08:08:16 2011 by Log Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

-2 DELTA TEMPERATURE (degF) 2	75	TEMPERATURE (degF)	95
	TEMPERATUR		
	(degF)		









900



-2 DELTA TEMPERATURE (degF) 2

75 TEMPERATURE (degF) 95

EMPERATUR
(degF)



**YOUNGQUIST
BROTHERS, Inc**
GEOPHYSICAL LOGGING DIVISION

**(24" CASING)
CEMENT TOP
TEMPERATURE
LOG**

Company LEE COUNTY REGIONAL SWDF
Well IW-1
Field SOLID WASTE DISPOSAL FACILITY
County HENDRY
State FL

Company LEE COUNTY REGIONAL SWDF
Well IW-1
Field SOLID WASTE DISPOSAL FACILITY
County HENDRY State FL

Location: API # :
Permanent Datum SEC TWP RGE Elevation
Log Measured From
Drilling Measured From
Other Services
SEE
COMMENTS
Elevation
K.B.
D.F.
G.L.

Date	14-JAN-2010			
Run Number	Bit	From	To	Run No
Depth Driller	ONE	SURFACE	1150'	
Depth Logger	TWO	42.5"	CASING	1139'
Bottom Logged Interval	THREE	12.25"	CASING	1945'
Top Log Interval	FOUR	32.5"	CASING	1945'
Open Hole Size	SURFACE			
Type Fluid	WATER			
Density / Viscosity	NA			
Max. Recorded Temp.	141.1 DegF			
Estimated Cement Top	453'			
Time Well Ready	2100			
Time Logger on Bottom	2135			
Equipment Number	104			
Location	FT MYERS			
Recorded By	MOREY			
Witnessed By	BODMANN, S			

Borehole Record		Borehole Record	
Run Number	Bit	From	To
ONE	12.25"	SURFACE	1150'
TWO	42.5"	CASING	1139'
THREE	12.25"	CASING	1945'
FOUR	32.5"	CASING	1945'
Casing Record	Size	Wght/Ft	Top
Surface String	44"	.375" W.T.	SURFACE
Prot. String	34"	.375" W.T.	SURFACE
Production String	24"	.375" W.T.	SURFACE
Liner			Bottom

<<< Fold Here >>>

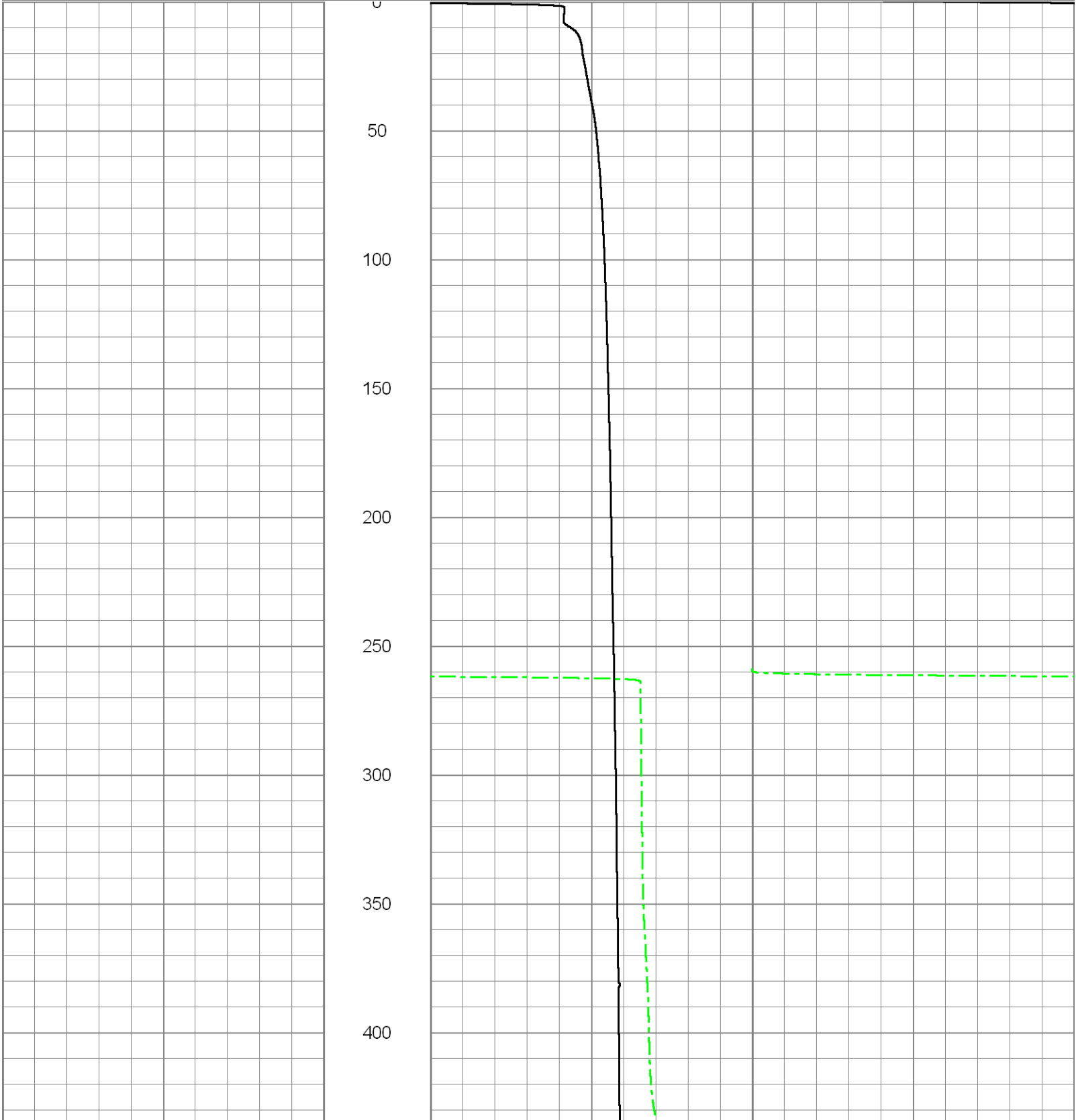
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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

STAGE 1 LOGGED @ 2100 ON 01/14/11
 STAGE 2 LOGGED @ 1015 ON 01/15/11
 STAGE 3 LOGGED @ 2100 ON 01/15/11
 STAGE 4 LOGGED @ 0800 ON 01/16/11

Database File: leelfiw1.db
Dataset Pathname: run5/TEMP1
Presentation Format: ctl_mg
Dataset Creation: Fri Jan 14 21:04:34 2011 by Log Open-Cased 090629
Charted by: Depth in Feet scaled 1:600

30	X-Caliper (in)	50	50	TEMP-STAGE #1 (degF)	150
			50	TEMP-STAGE #2 (degF)	150
			50	TEMP-STAGE #3 (degF)	150
			50	TEMP-STAGE #4 (degF)	150



450

500

550

600

650

700

750

800

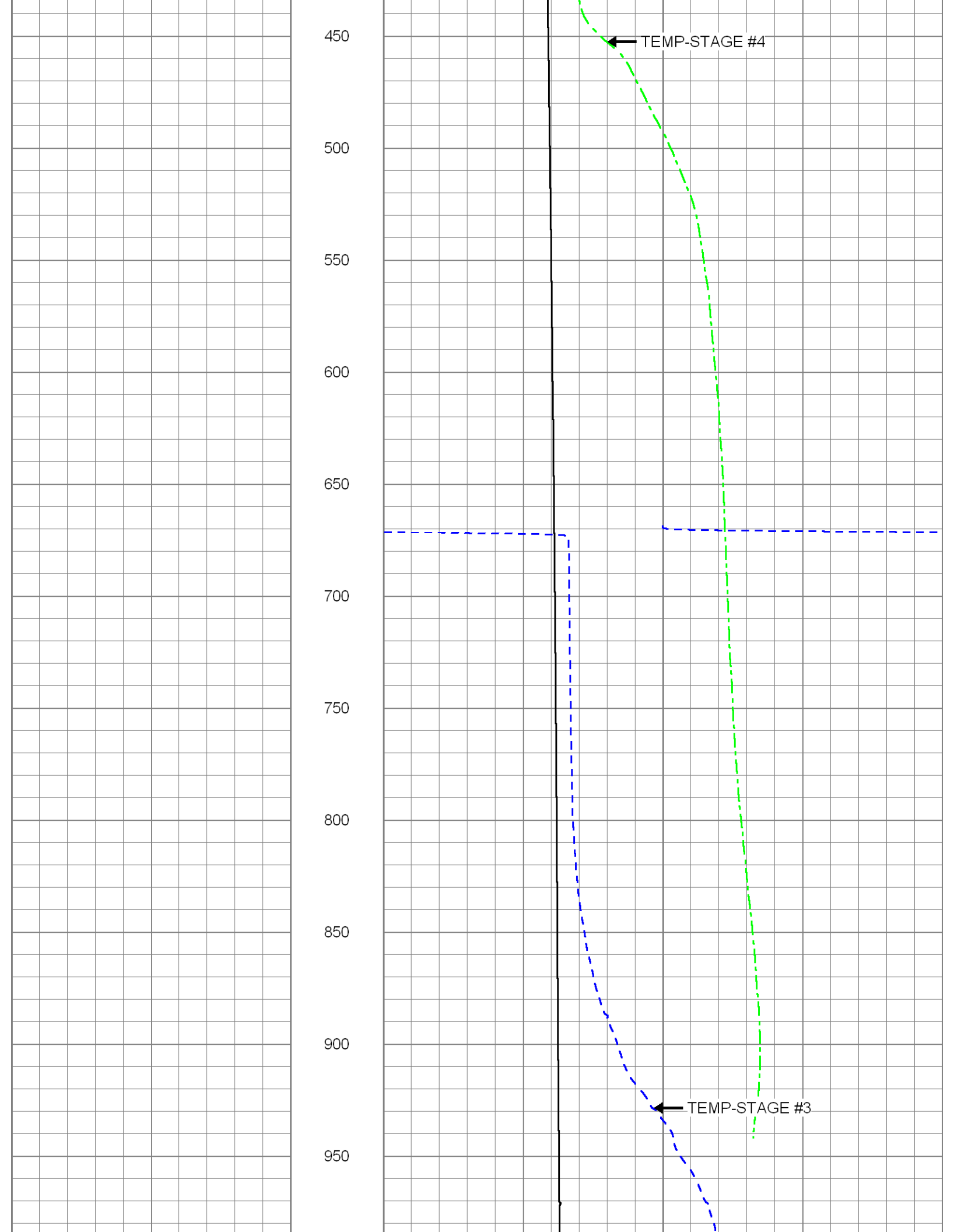
850

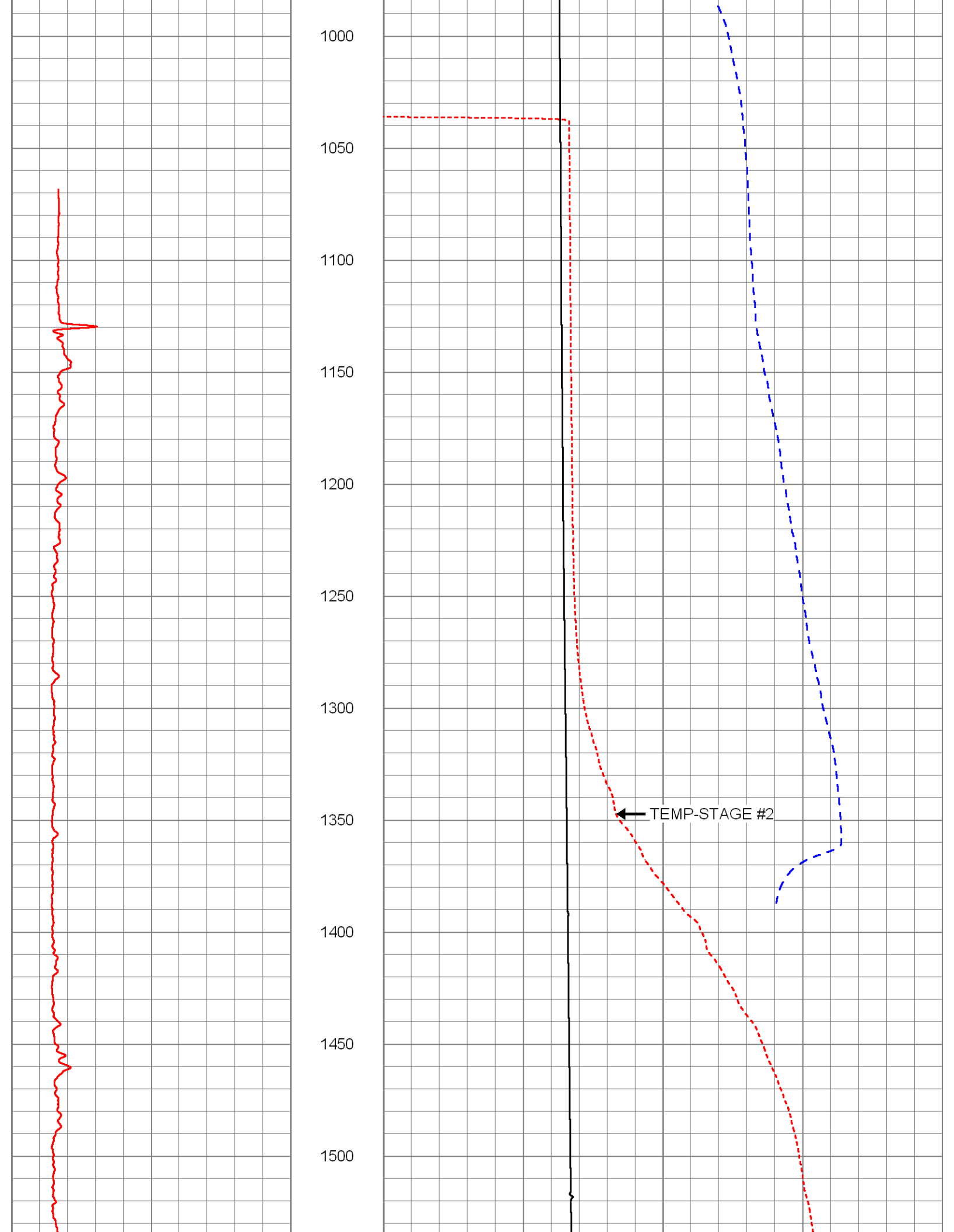
900

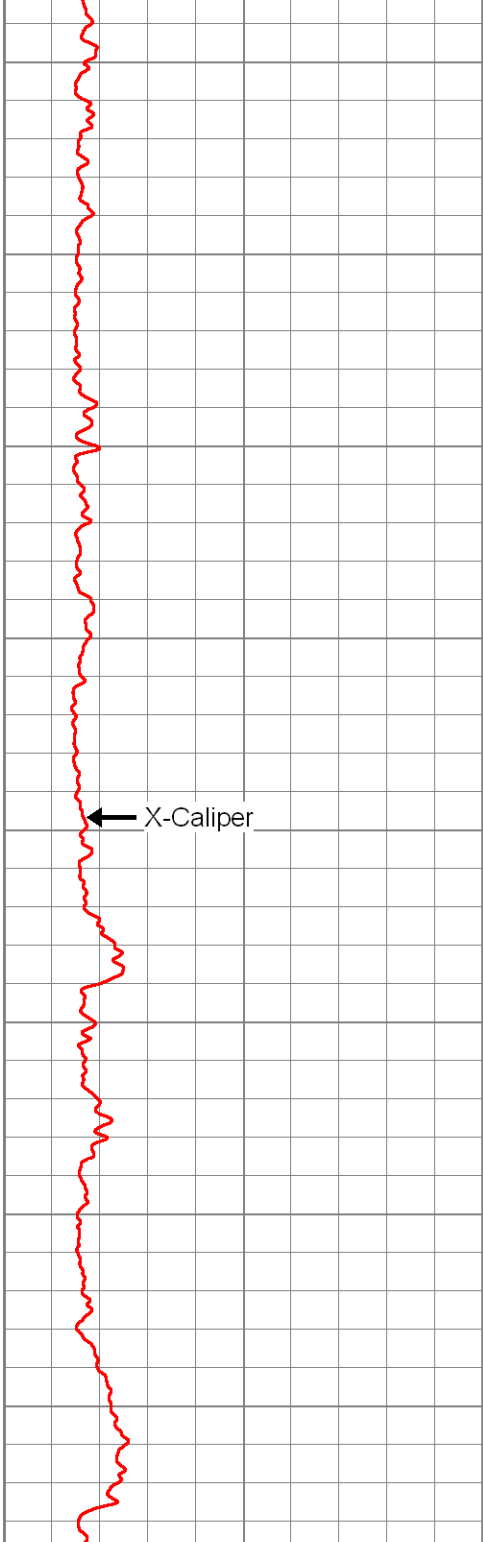
950

TEMP-STAGE #4

TEMP-STAGE #3







30 X-Caliper (in) 50



50	TEMP-STAGE #1 (degF)	150
50	TEMP-STAGE #2 (degF)	150
50	TEMP-STAGE #3 (degF)	150
50	TEMP-STAGE #4 (degF)	150

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			TEMP-MLS (17)	2.45	1.63	30.00

TEMP

0.25

Dataset: leelfiw1.db: field/well/run5/TEMP1
Total Length: 2.45 ft
Total Weight: 30.00 lb
O.D. 1.63 in

Calibration Report

Database File: leelfiw1.db
Dataset Pathname: run5/TEMP1
Dataset Creation: Fri Jan 14 21:04:34 2011 by Log Open-Cased 090629

Temperature Calibration Report

Serial Number: 17
Tool Model: MLS
Performed: Mon Dec 27 10:13:09 2010

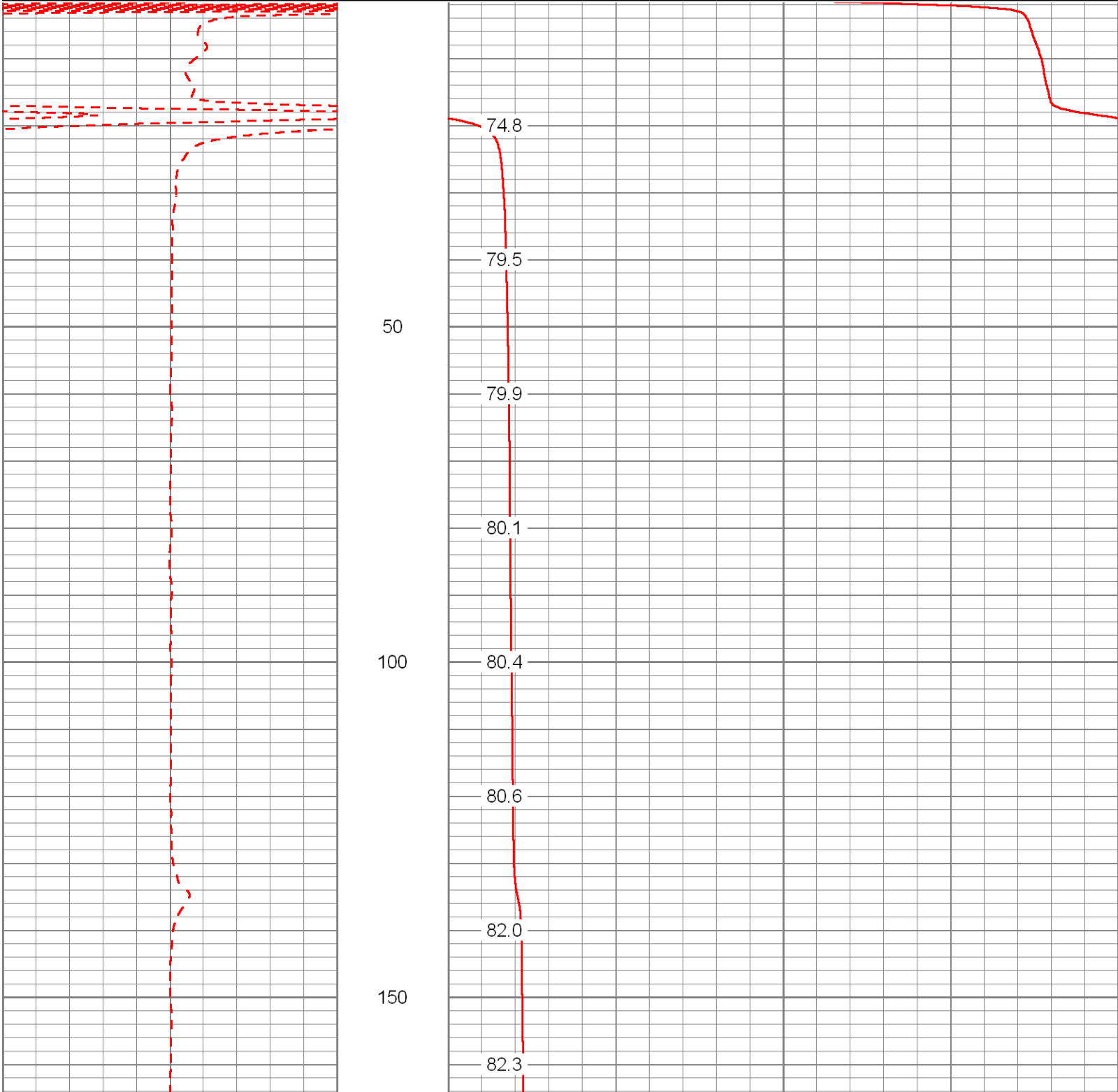
Point #	Reading		Reference	
1	321.00	cps	32.00	degF
2	700.11	cps	70.00	degF
3	2000.10	cps	200.00	degF
4		cps		degF
5		cps		degF
6		cps		degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

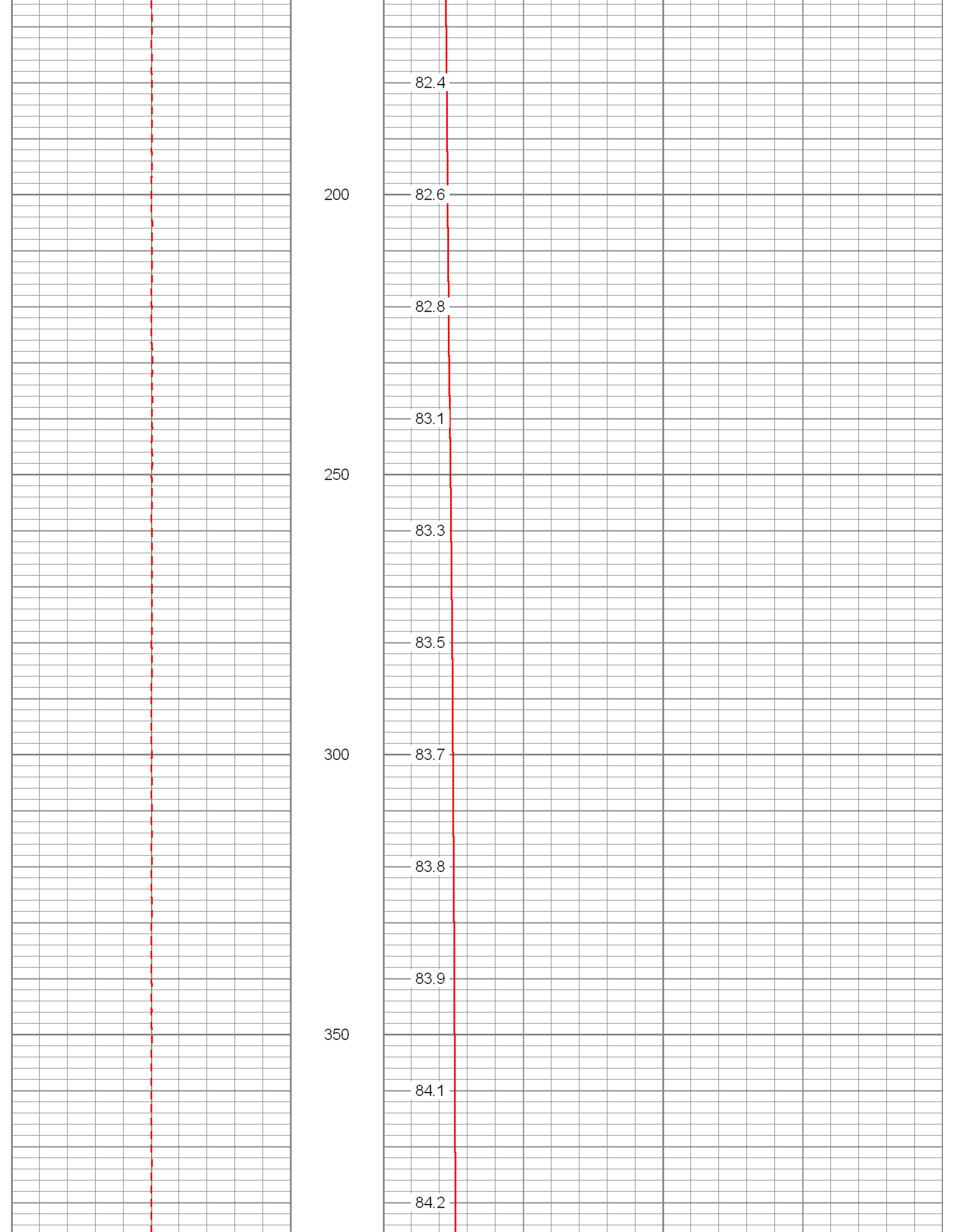


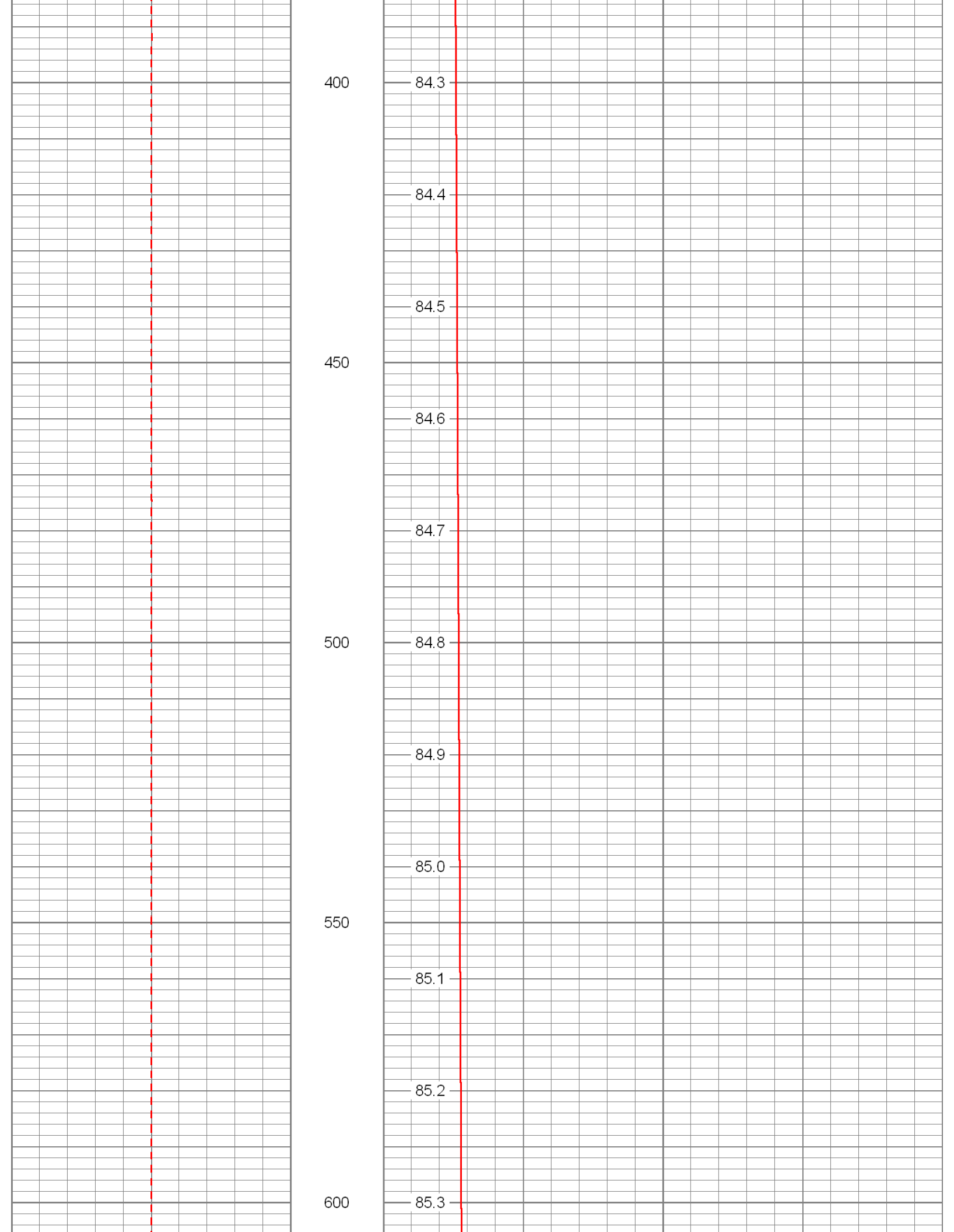
TEMP STAGE 1

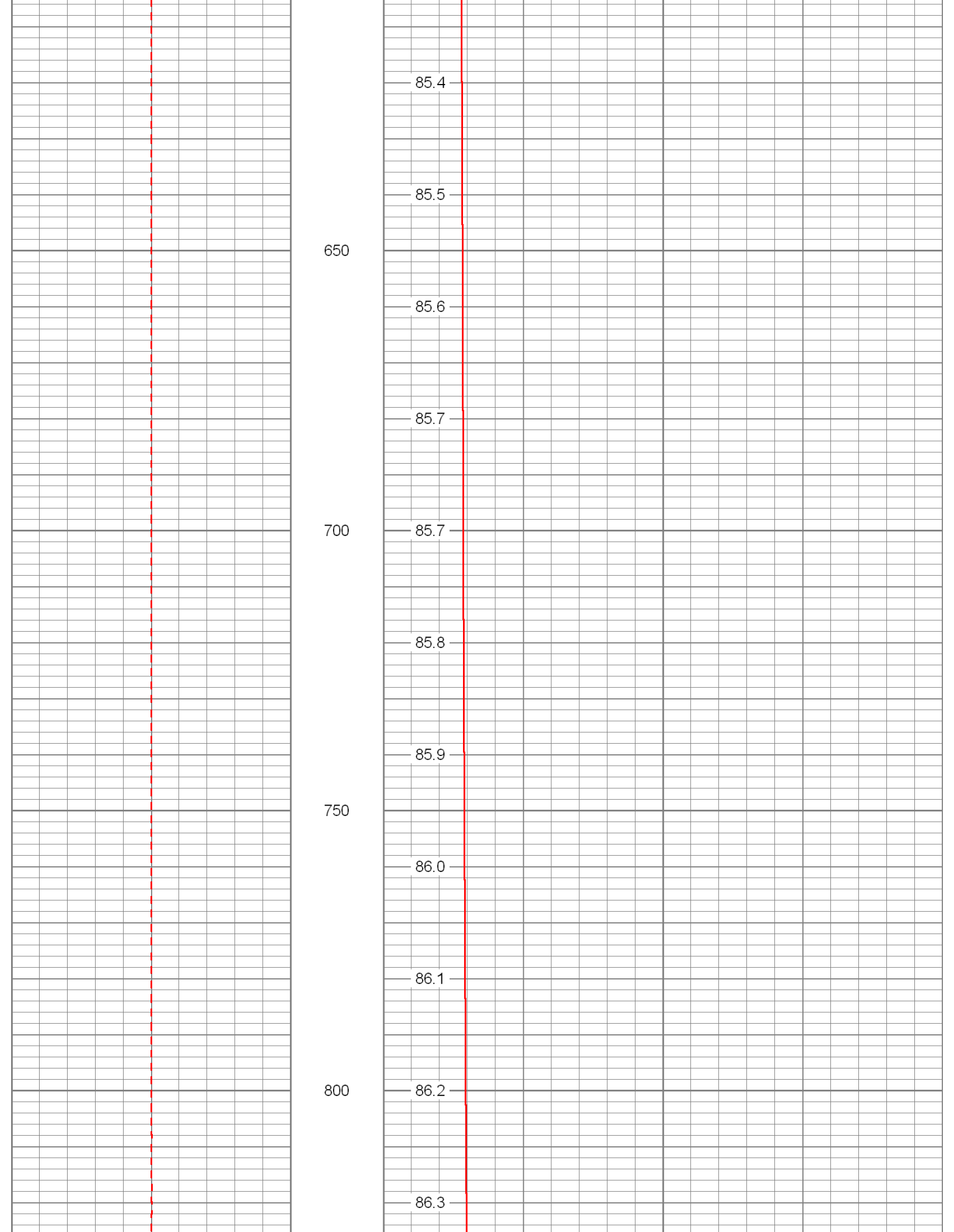
Database File: leelfiw1.db
 Dataset Pathname: run9/temp1
 Presentation Format: temp
 Dataset Creation: Sat Apr 02 07:18:25 2011 by Log Open-Cased 100827
 Charted by: Depth in Feet scaled 1:240

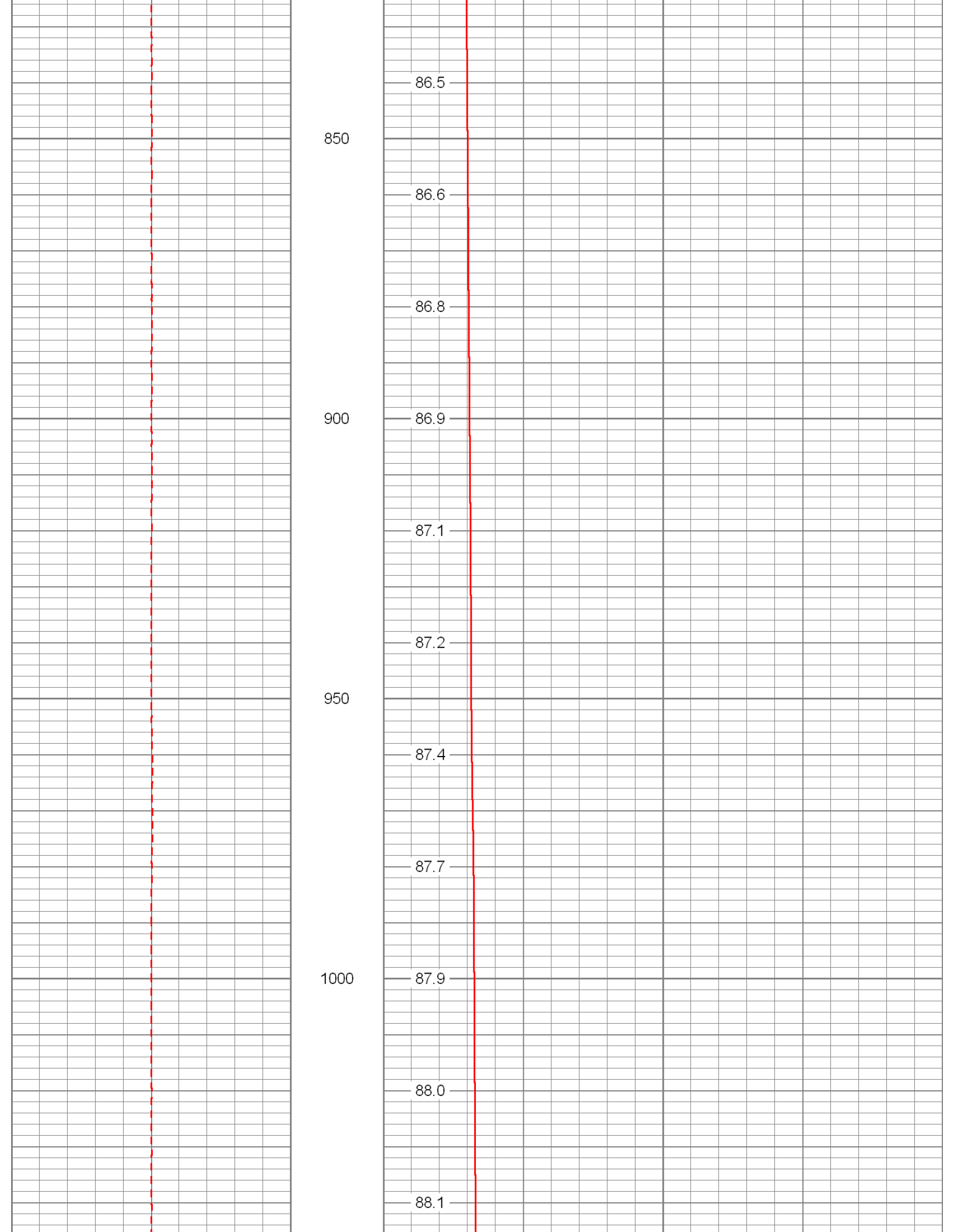
-2	DTMP (degF)	2	70	TEMP 1 (degF)	180
10	XCAL (in)	40	TEMPERATUR		
			(degF)		

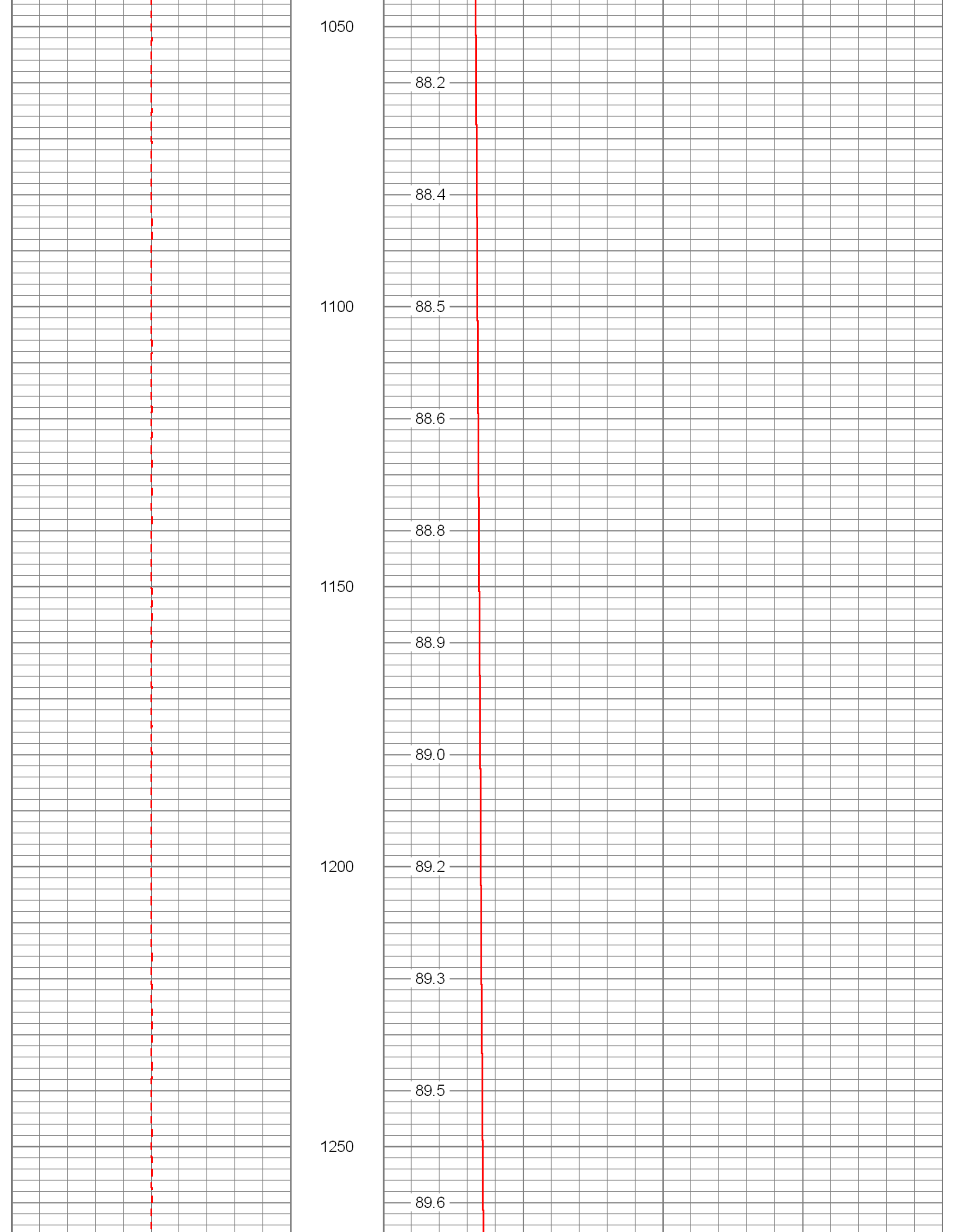


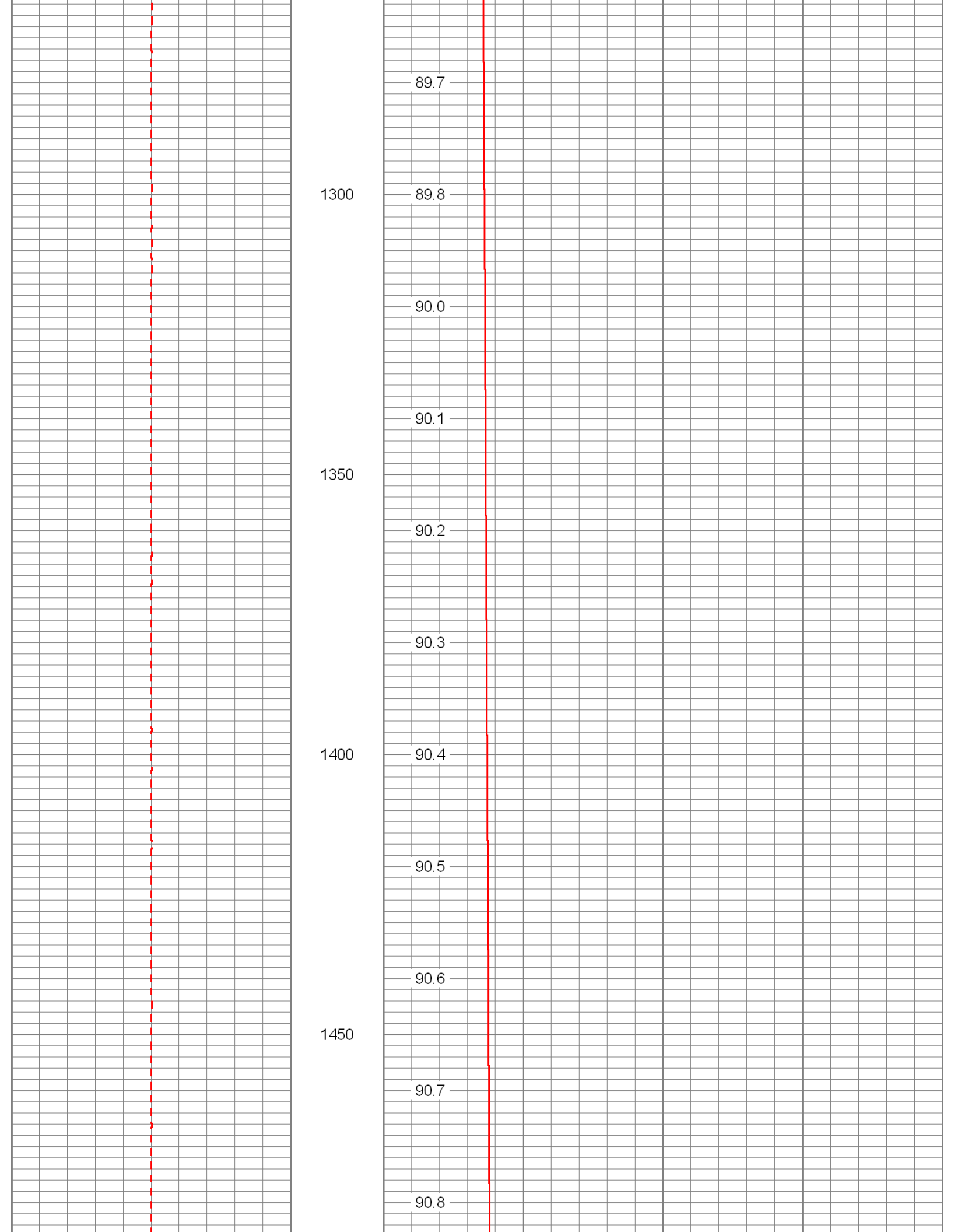


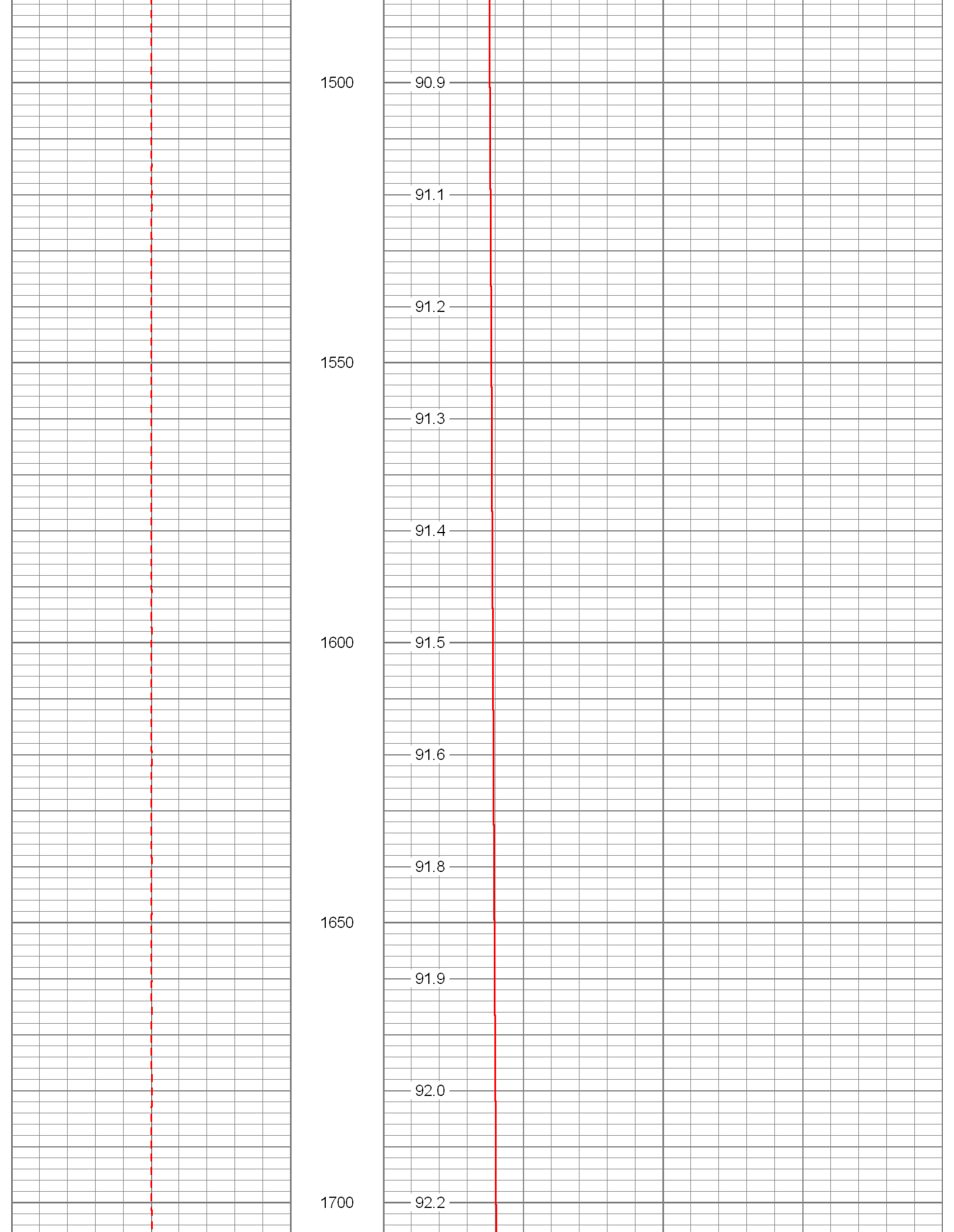


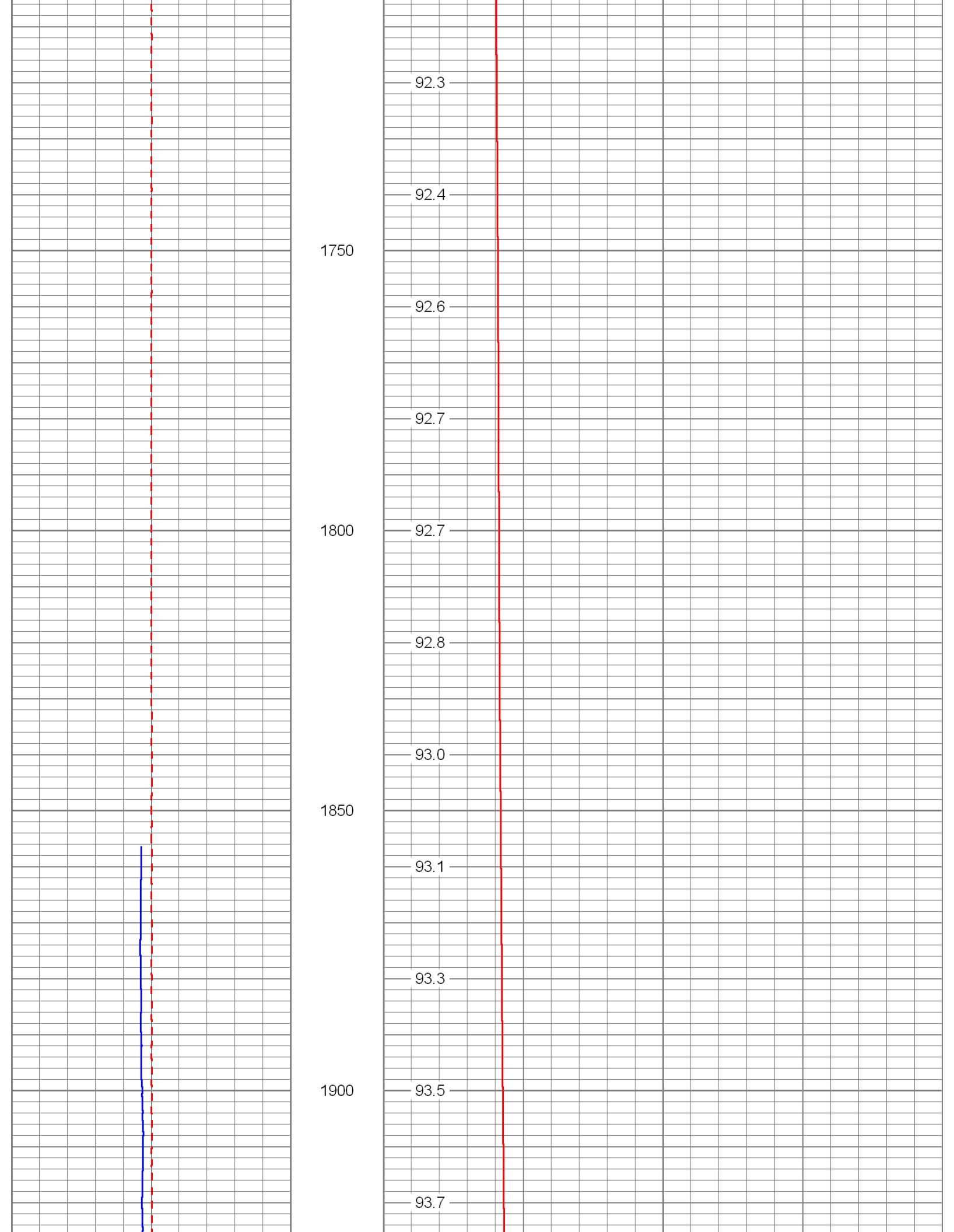














1950

2000

2050

2100

93.9

94.1

94.4

94.5

94.7

94.8

94.9

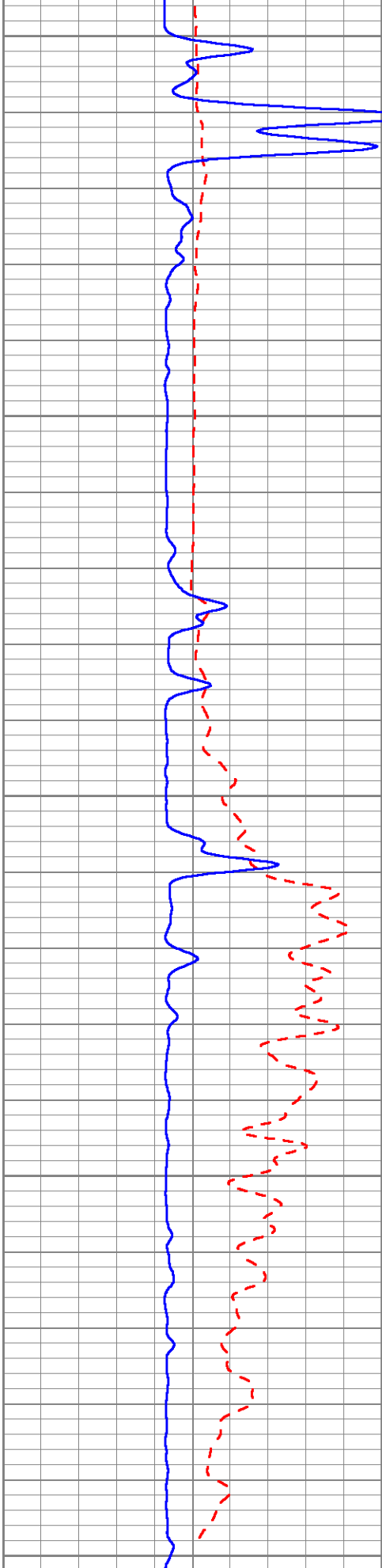
95.1

95.6

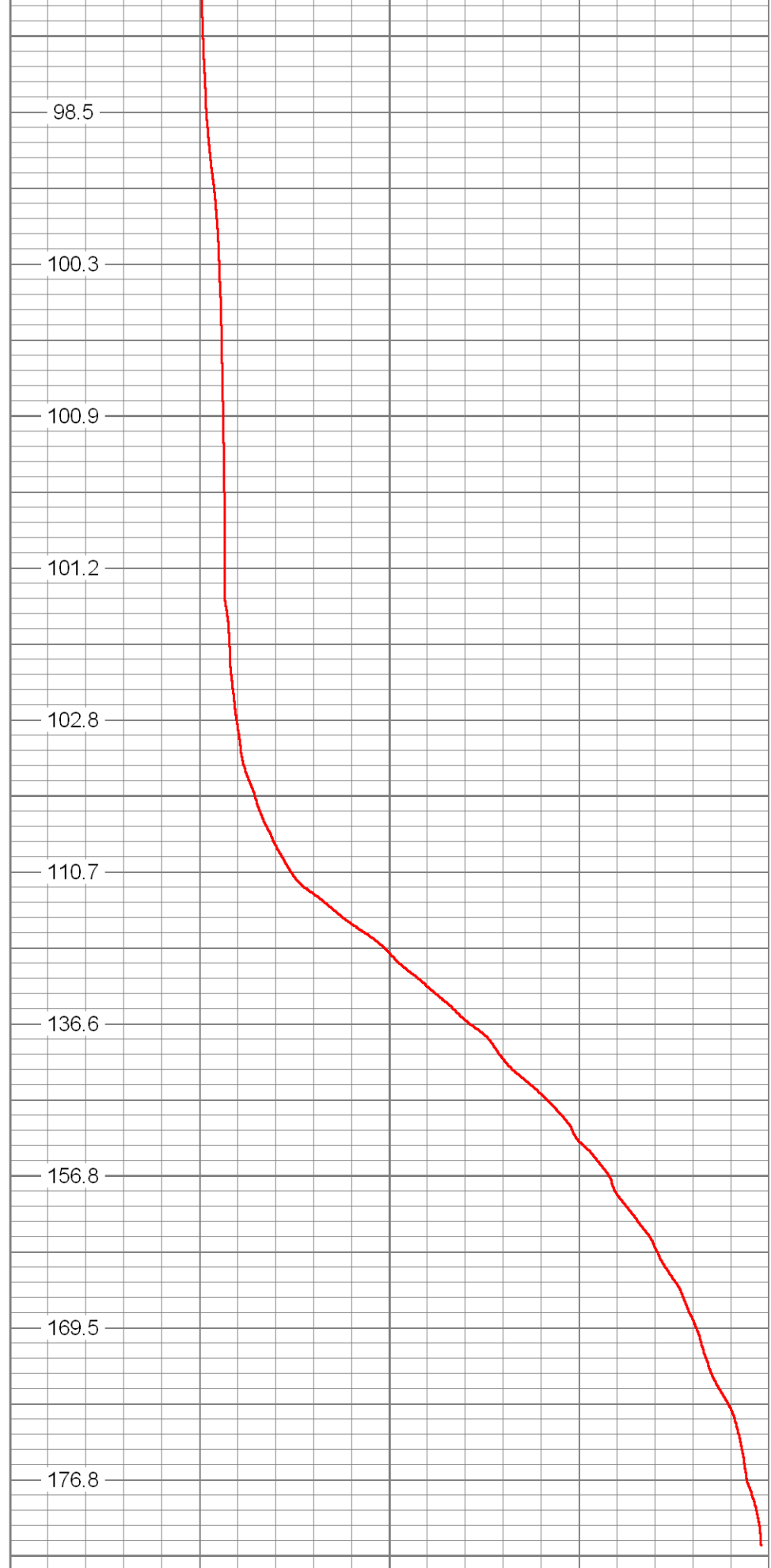
96.8

97.6





2150
2200
2250
2300
2350

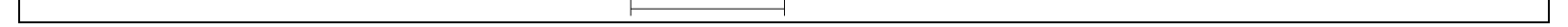


98.5
100.3
100.9
101.2
102.8
110.7
136.6
156.8
169.5
176.8

-2 DTMP (degF) 2
10 XCAL (in) 40

70 TEMP 1 (degF) 180

EMPERATUR (degF)

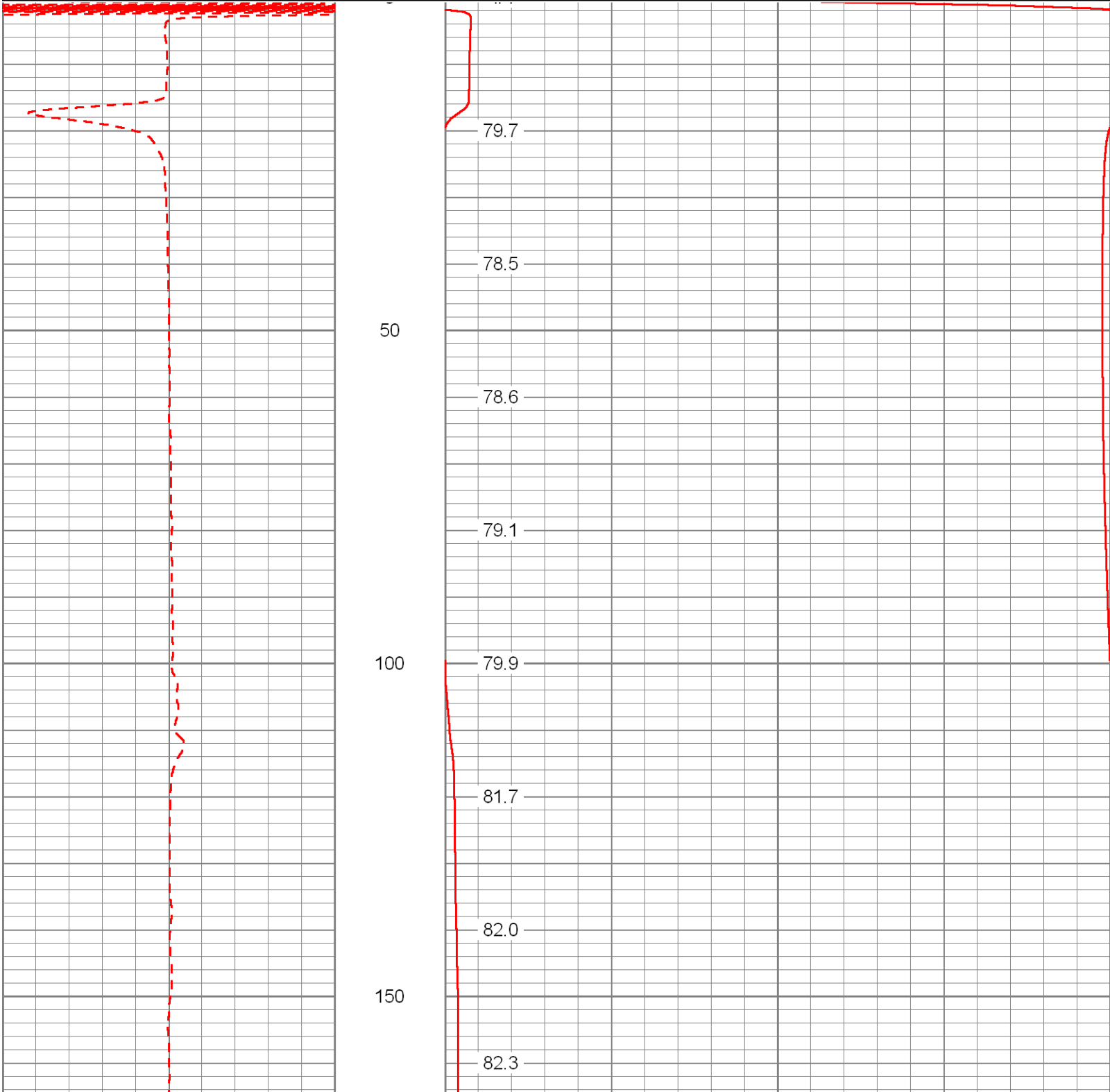


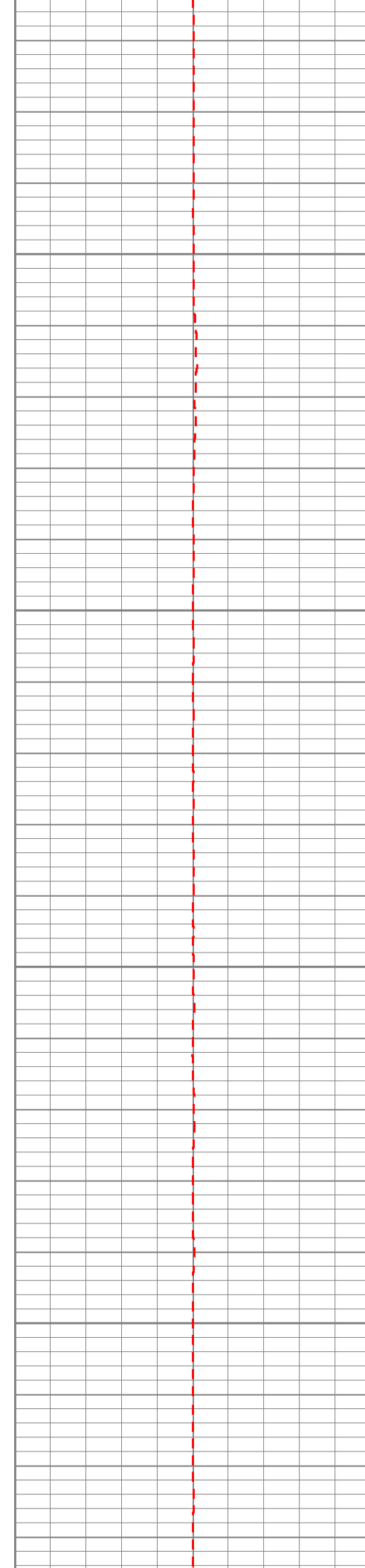


TEMP STAGE 2

Database File: leelfiw1.db
Dataset Pathname: run9/temp2
Presentation Format: temp
Dataset Creation: Sat Apr 02 19:18:11 2011 by Log Open-Cased 100827
Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	80	TEMPERATURE (degF)	200
			EMPERATUR		
			(degF)		





200

250

300

350

82.5

82.7

83.3

83.6

83.8

83.9

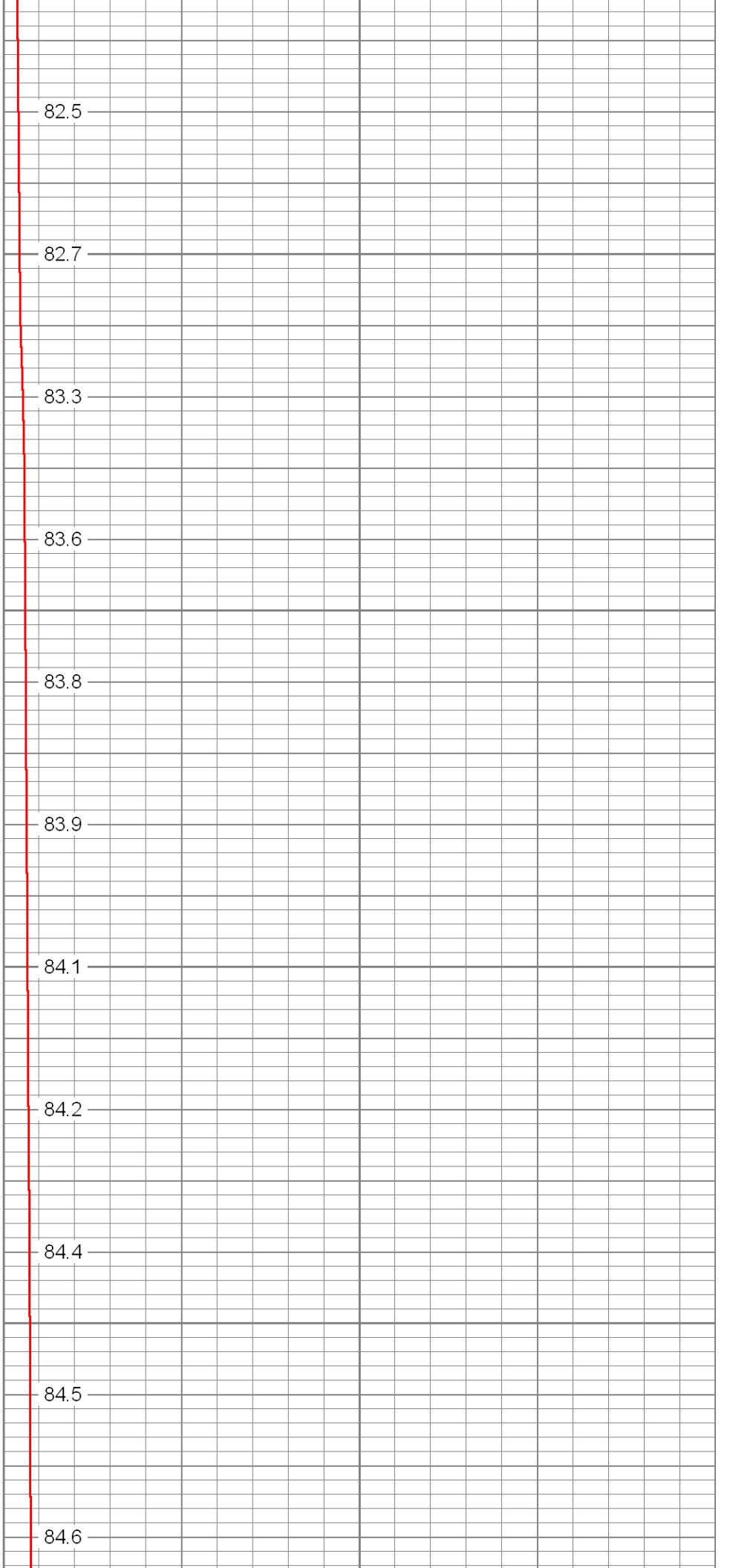
84.1

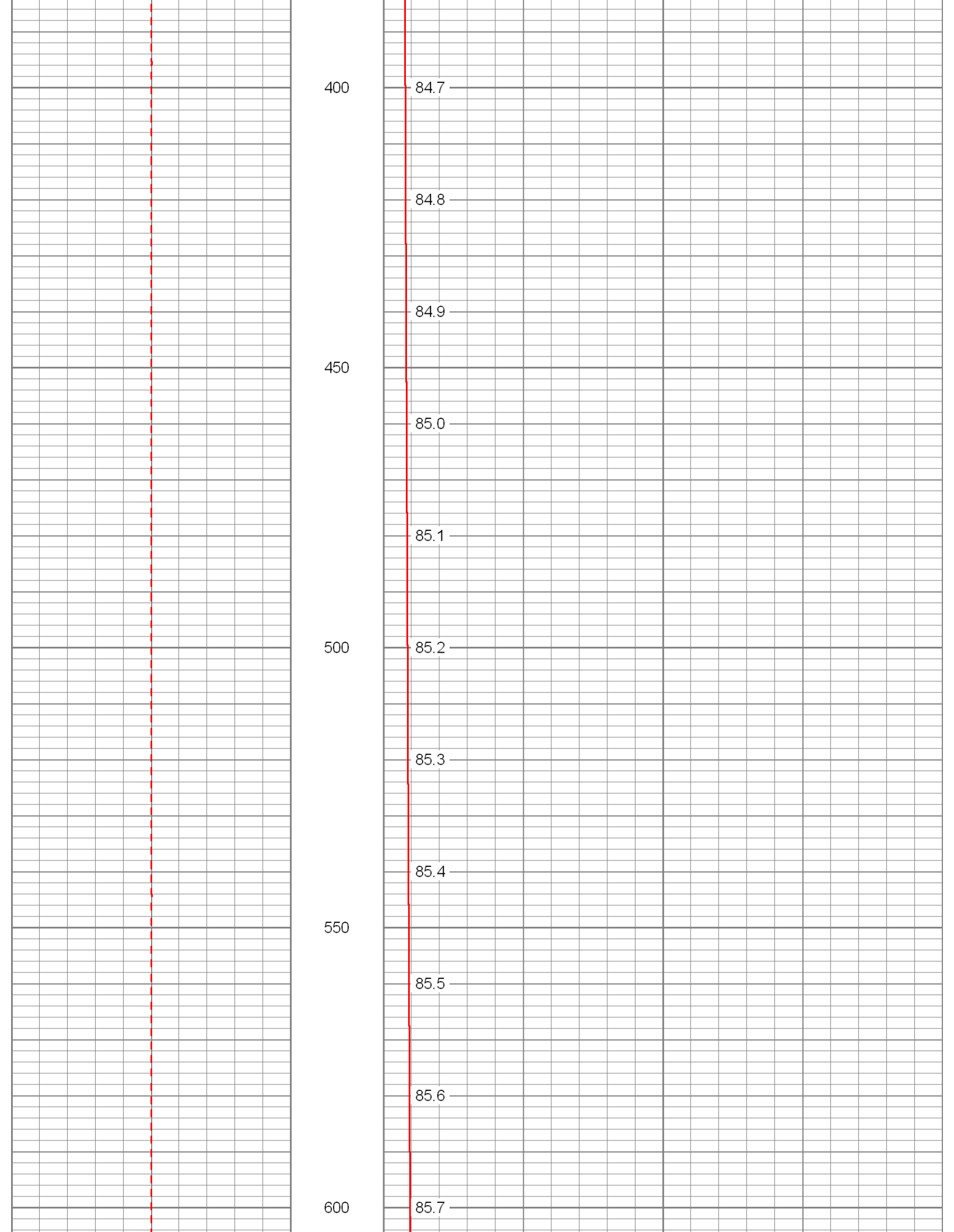
84.2

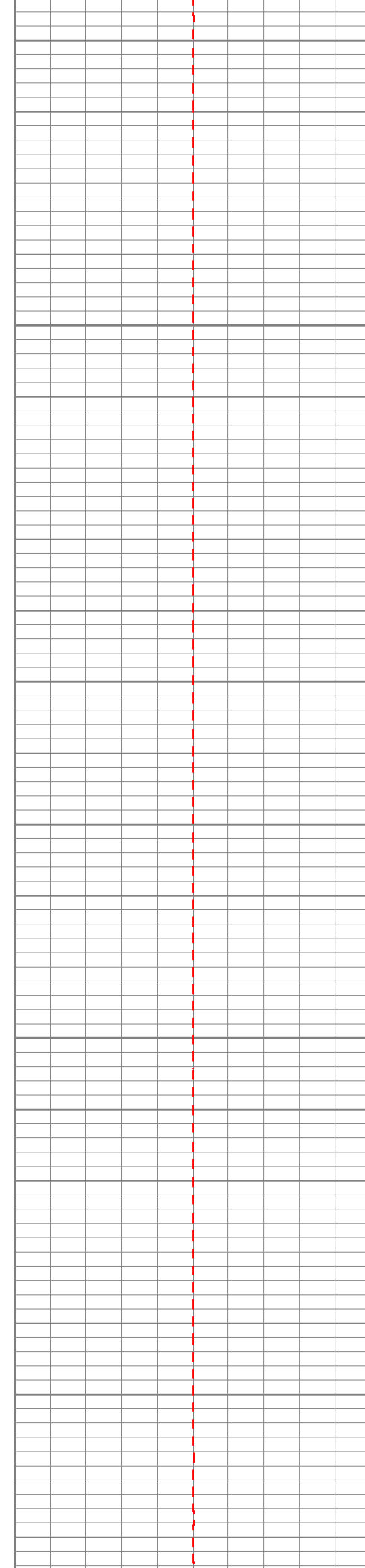
84.4

84.5

84.6







650

700

750

800

85.8

85.9

86.0

86.0

86.1

86.1

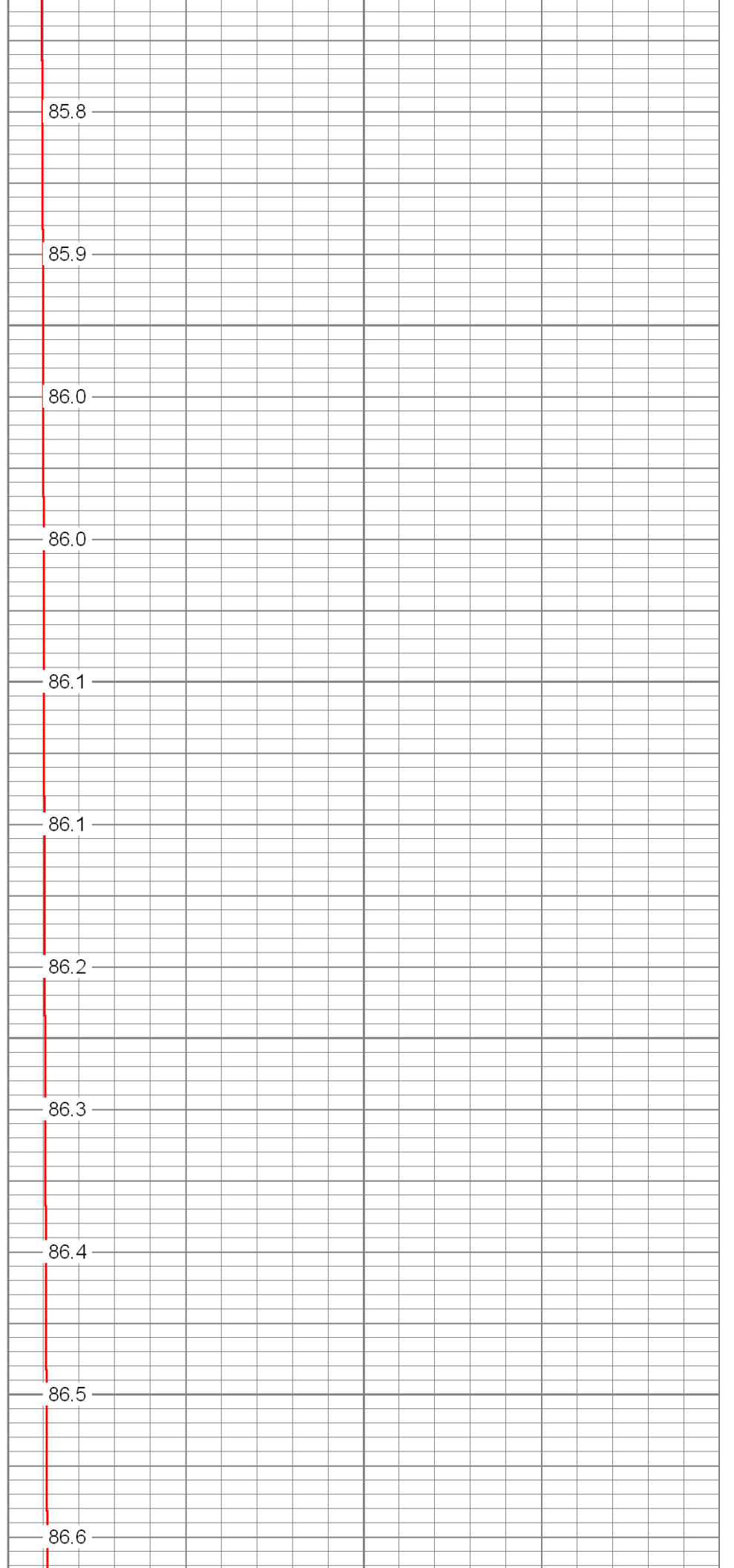
86.2

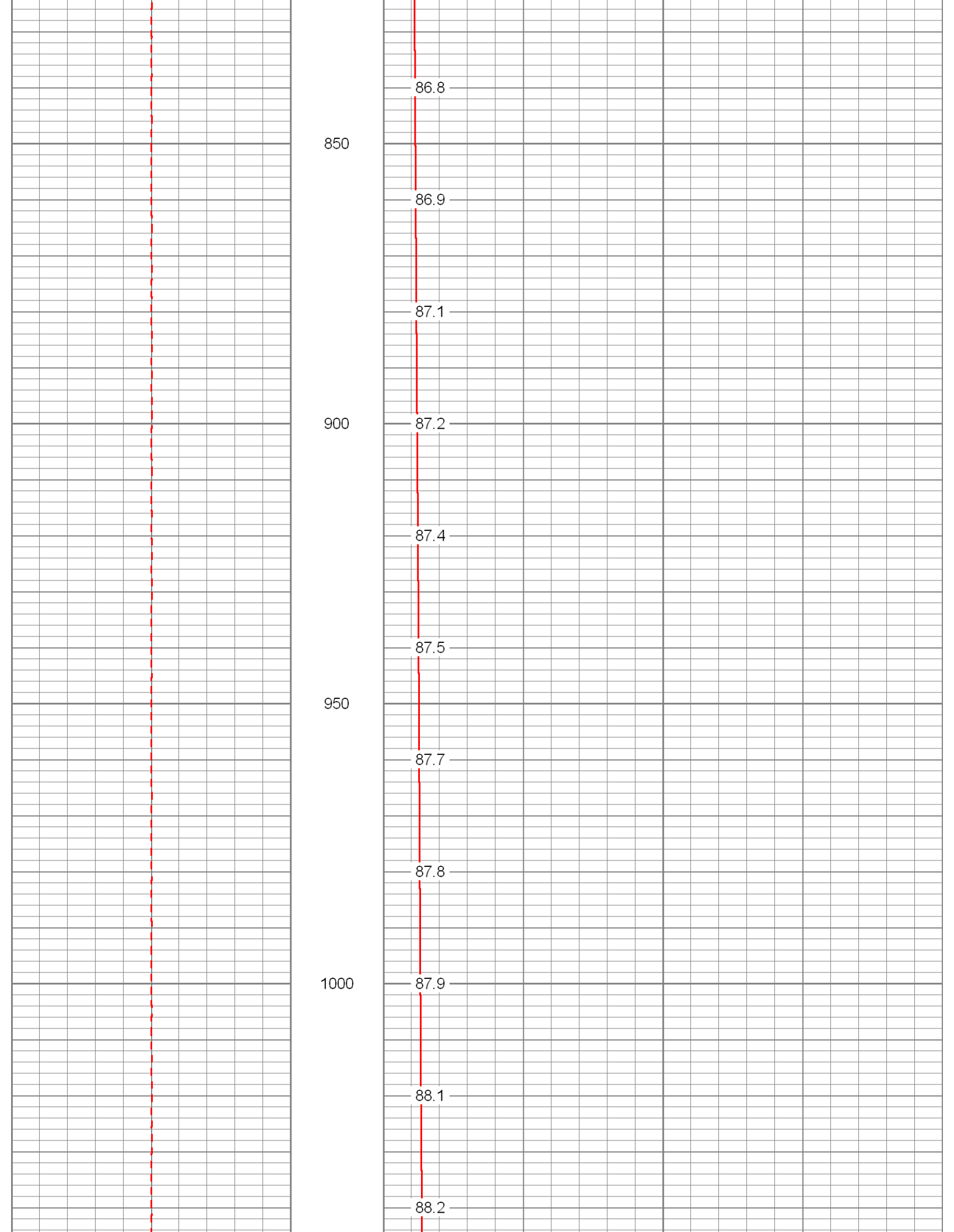
86.3

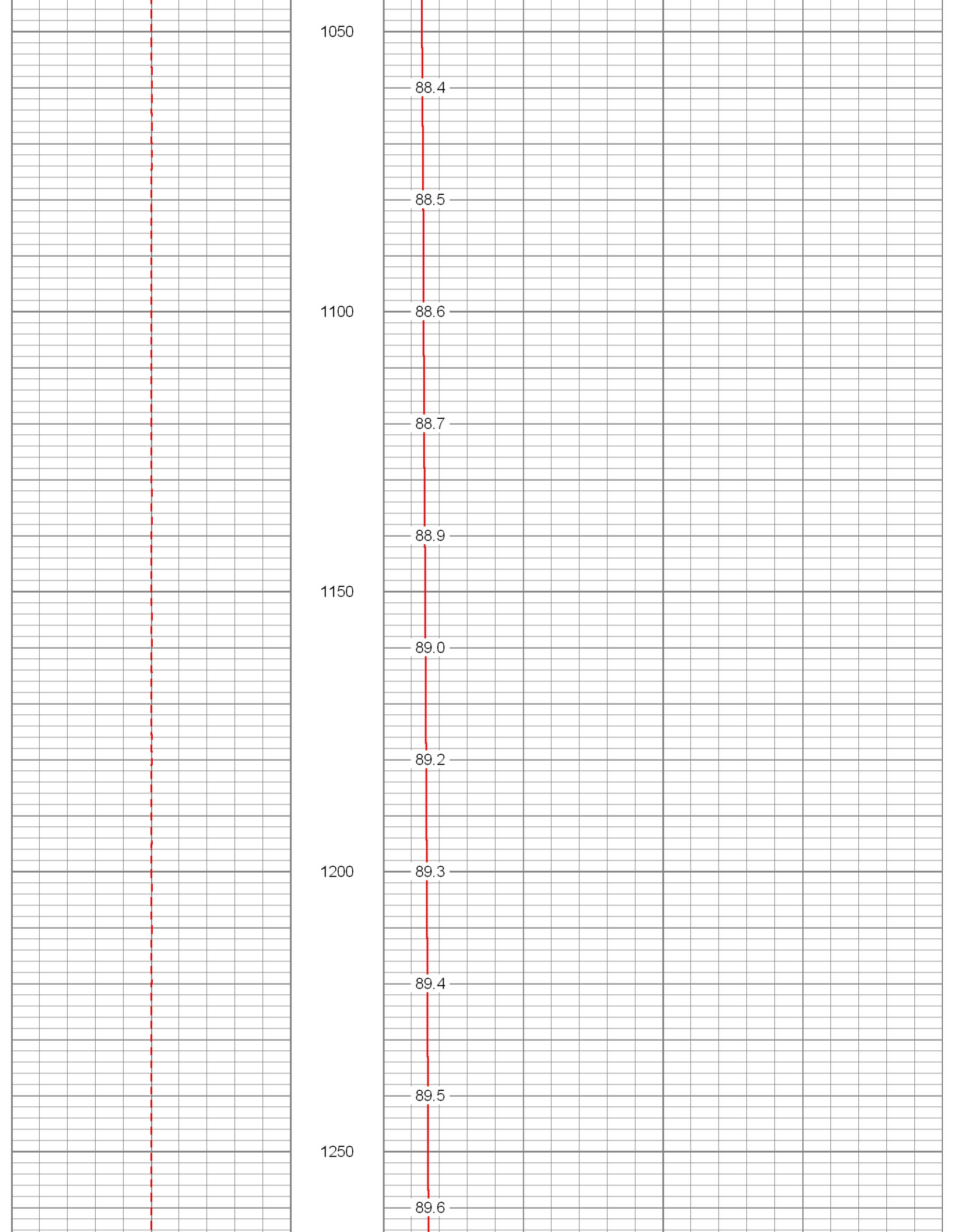
86.4

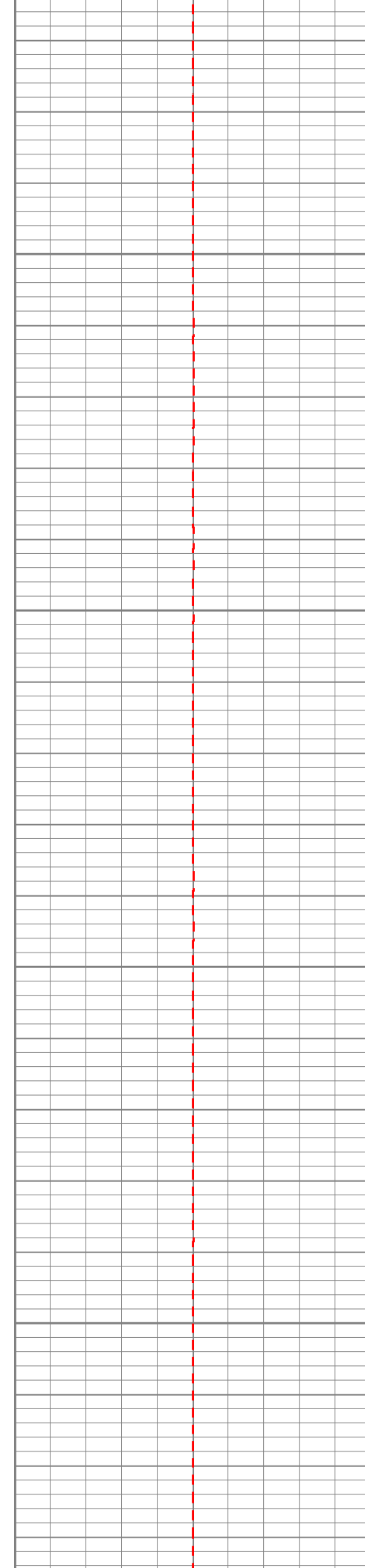
86.5

86.6









1300

1350

1400

1450

89.7

89.8

90.0

90.2

90.3

90.4

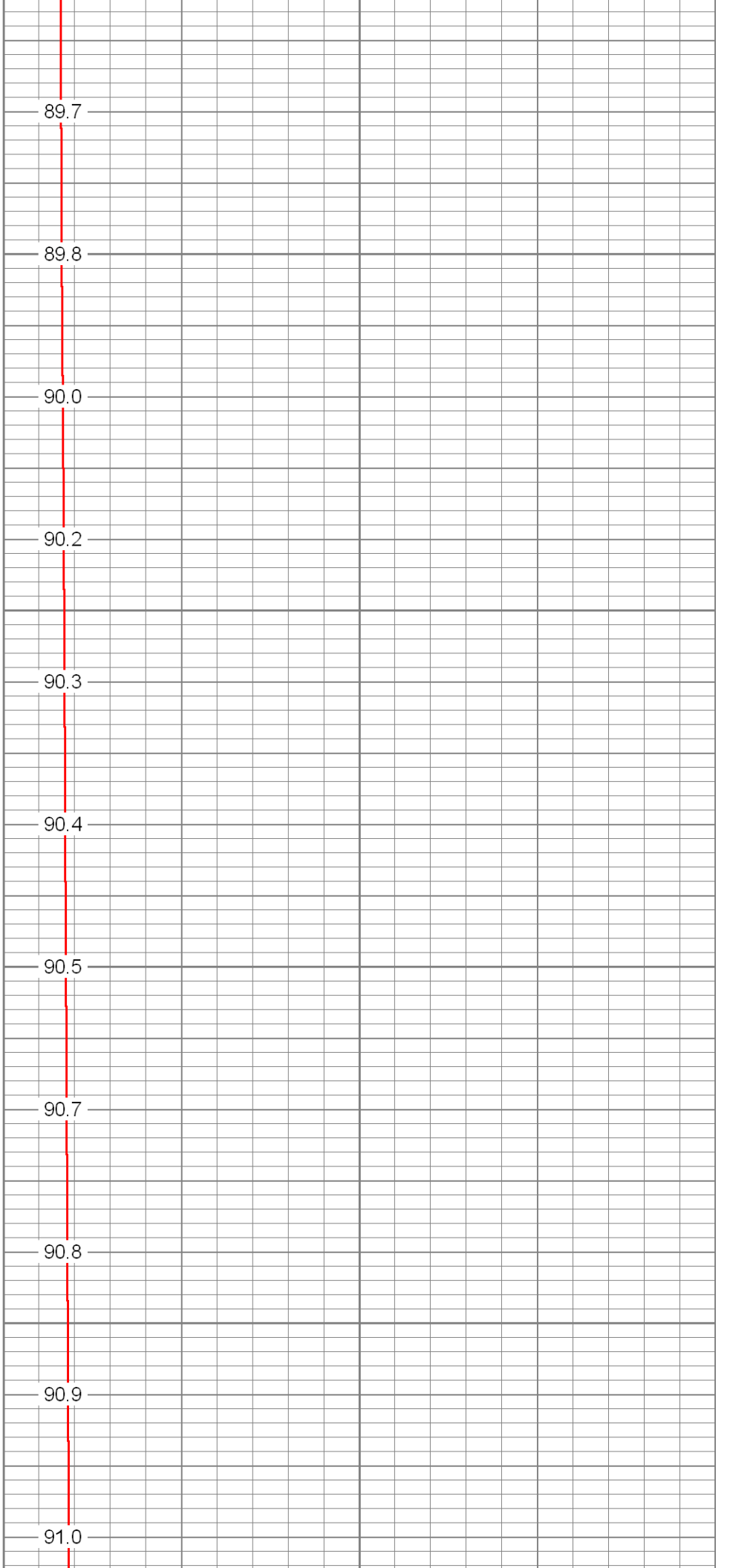
90.5

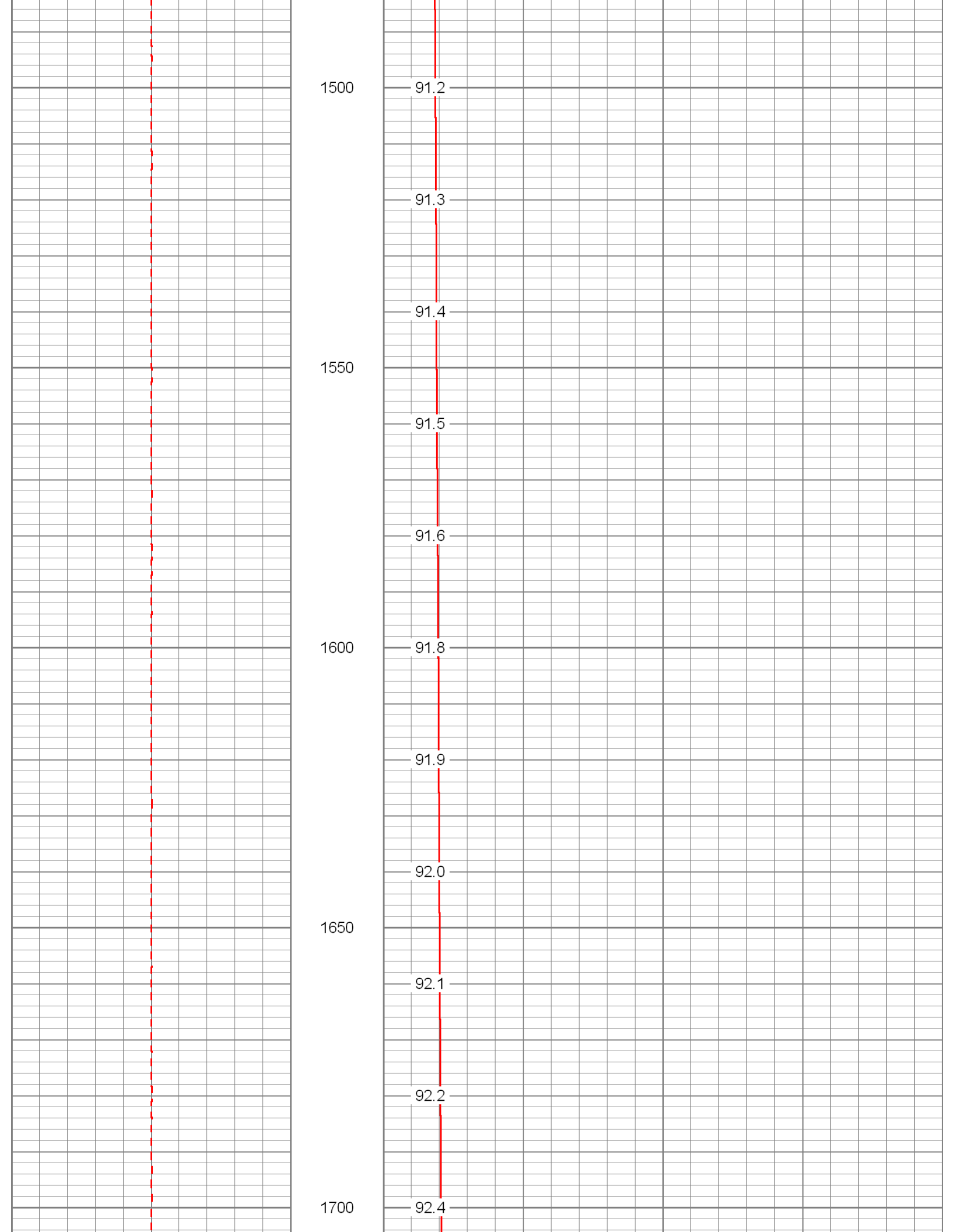
90.7

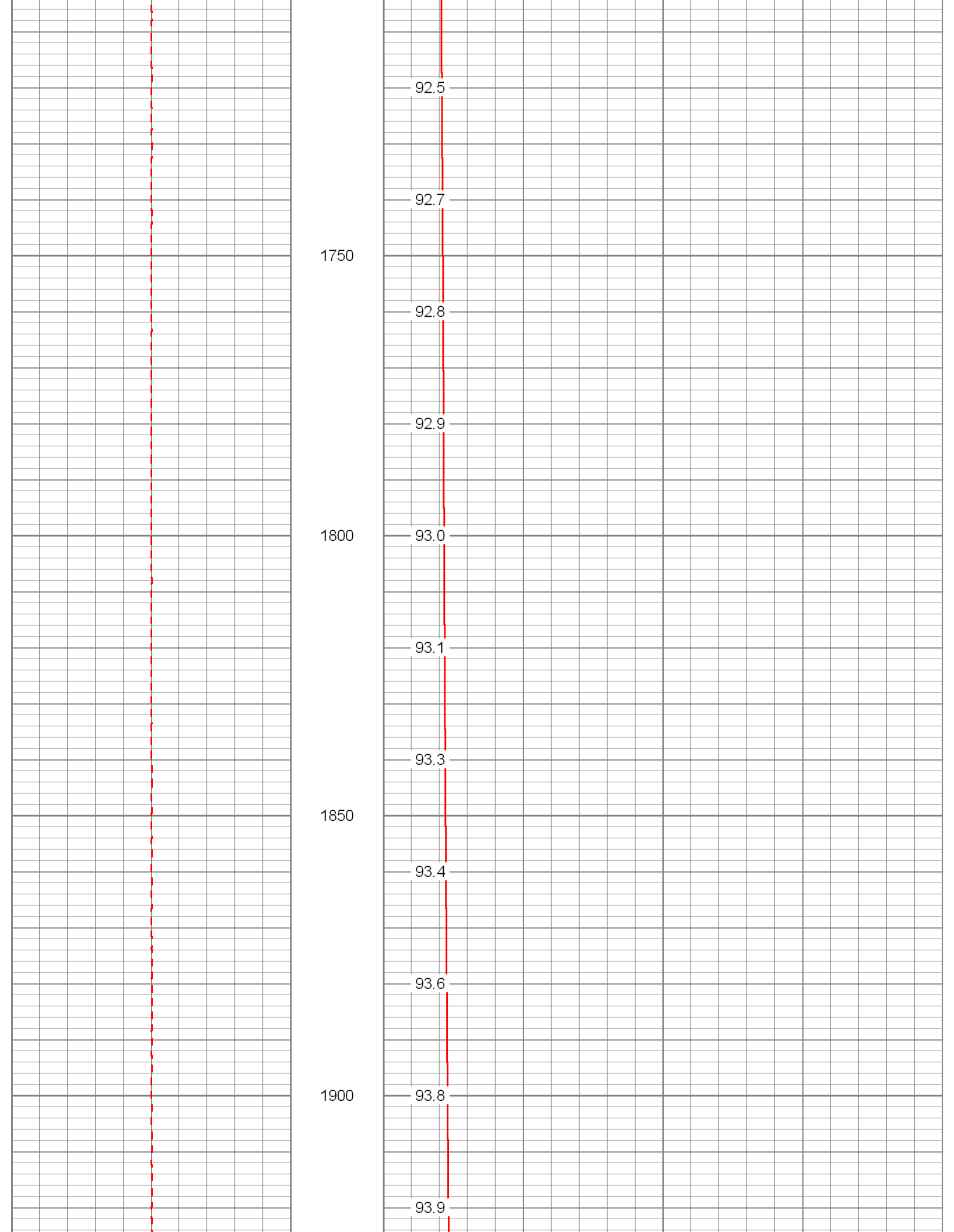
90.8

90.9

91.0





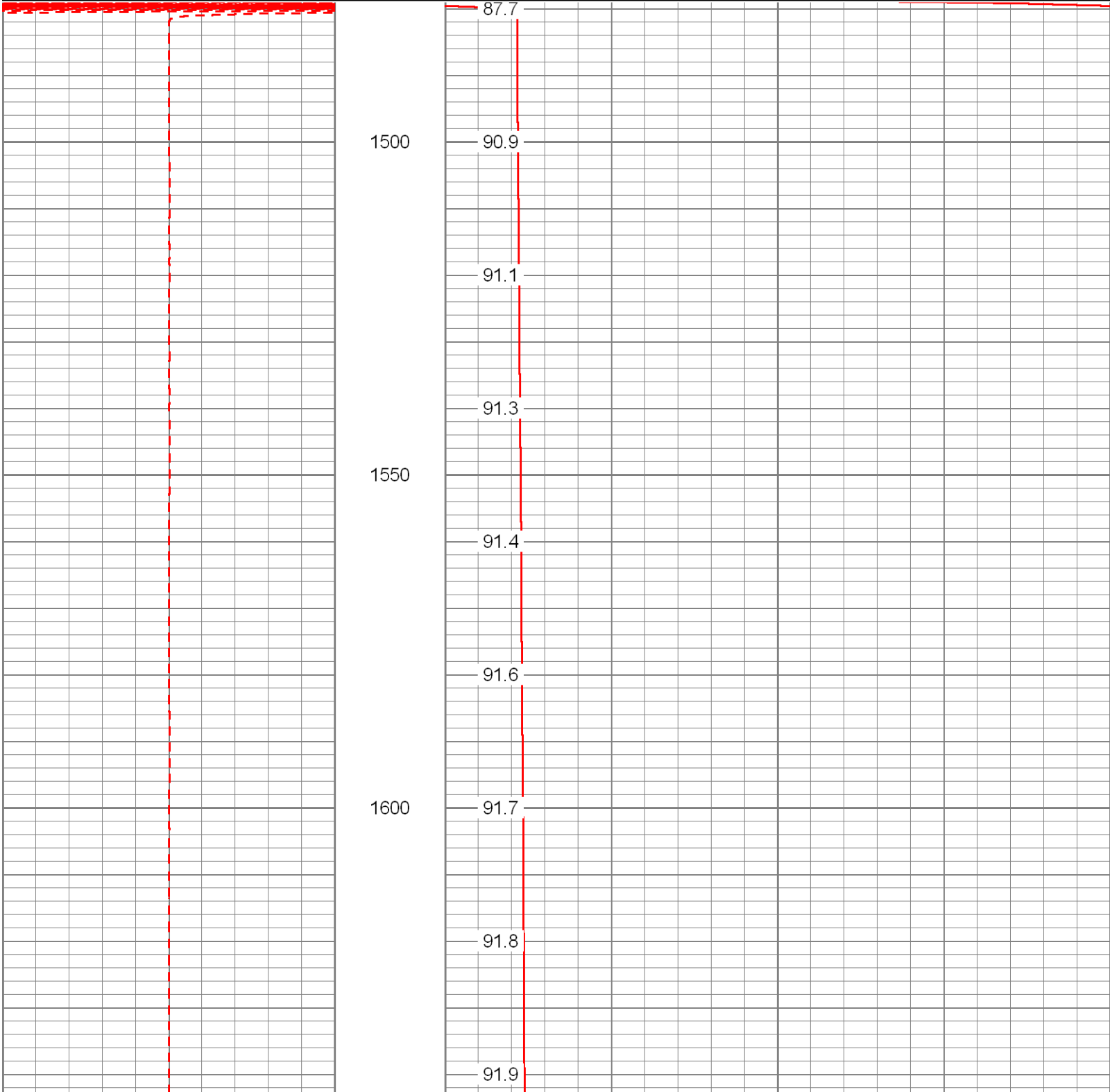


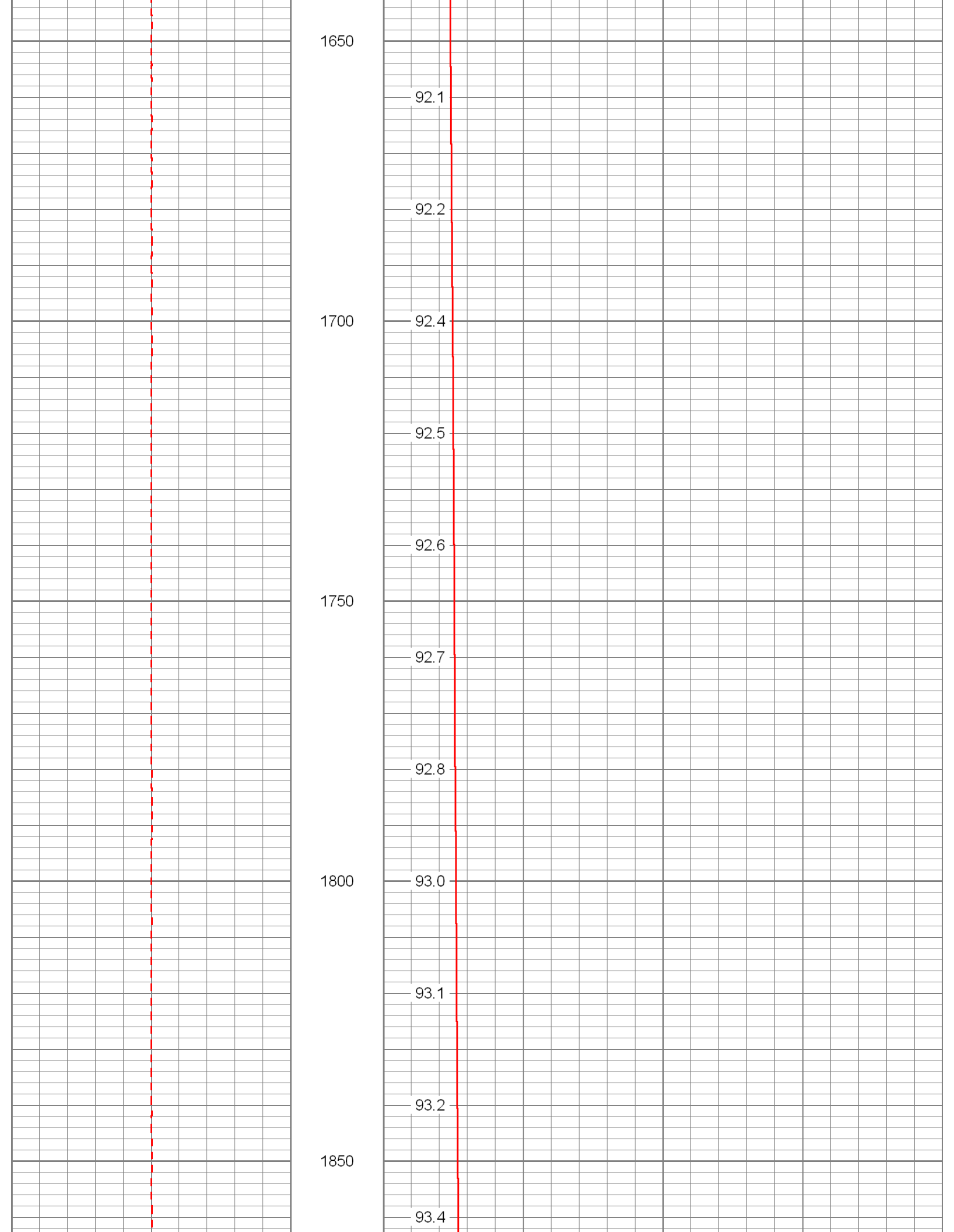


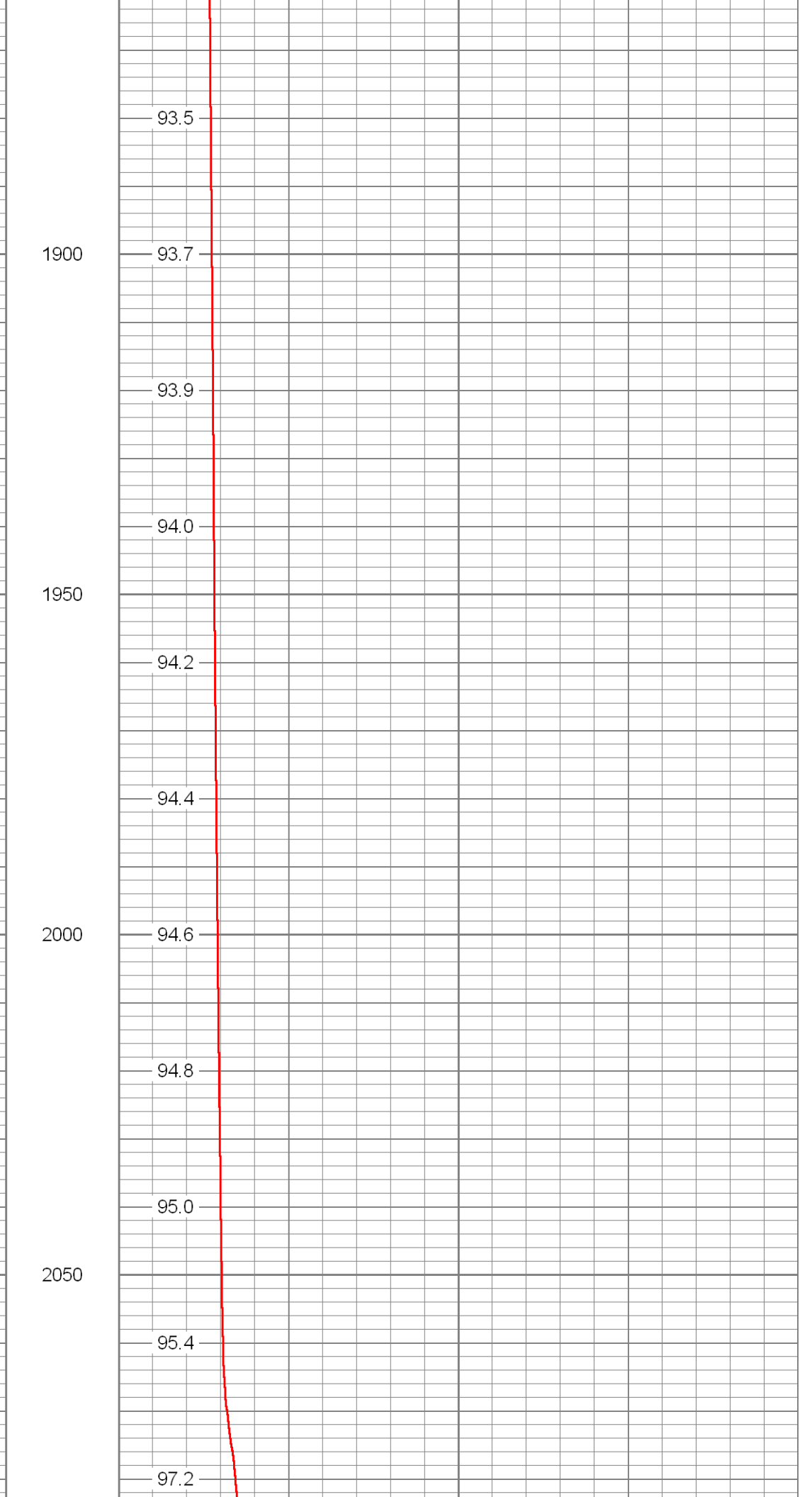
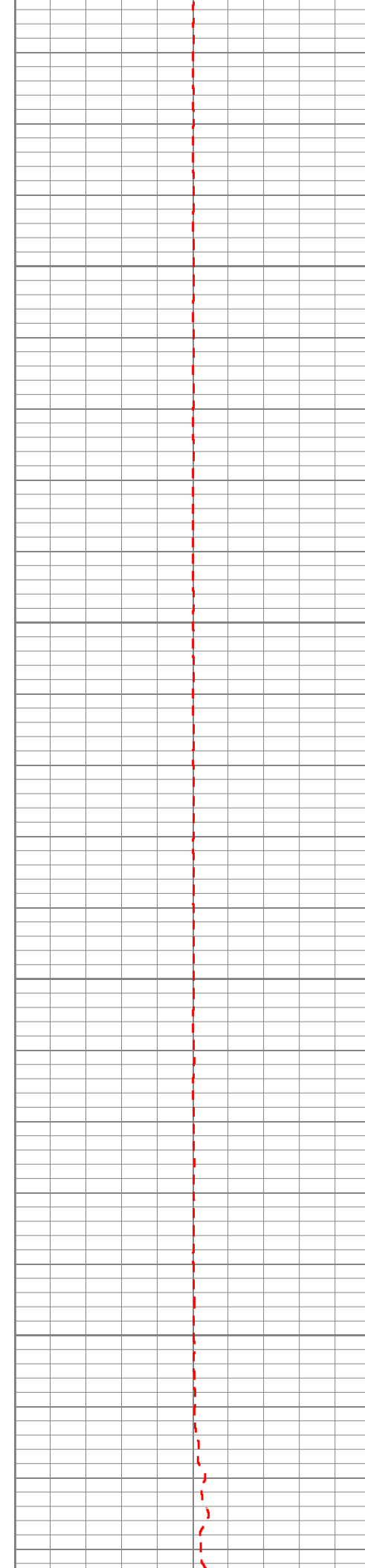
TEMP STAGE 3

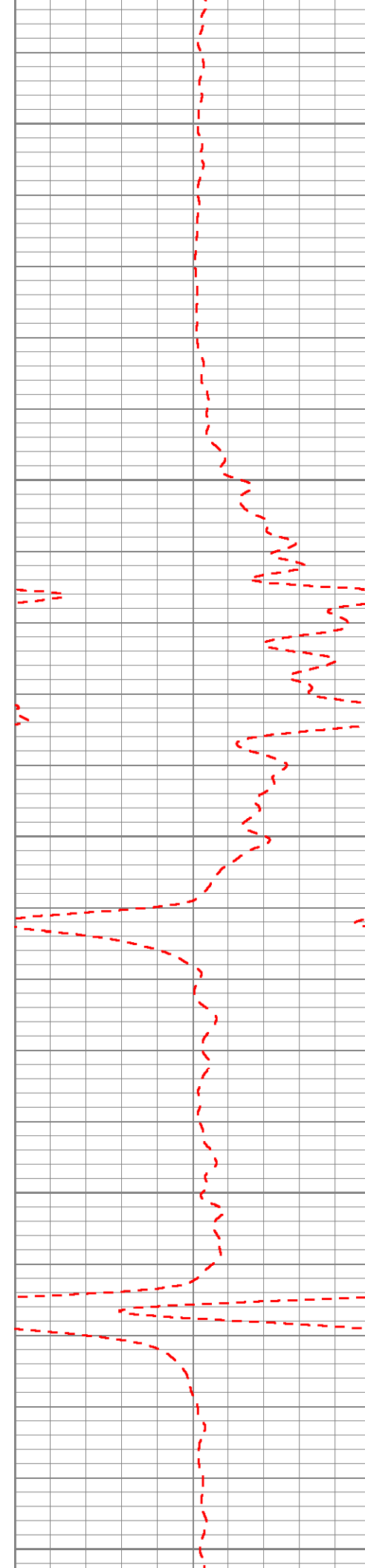
Database File: leelfiw1.db
 Dataset Pathname: run9/temp3
 Presentation Format: temp
 Dataset Creation: Sun Apr 03 04:13:24 2011 by Log Open-Cased 100827
 Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	80	TEMPERATURE (degF)	180
			EMPERATUR		
			(degF)		









2100

2150

2200

2250

2300



99.1

100.5

102.1

112.4

139.9

161.2

156.6

159.0

163.3

142.3

144.3

-2 DTMP (degF) 2

80 TEMPERATURE (degF) 180

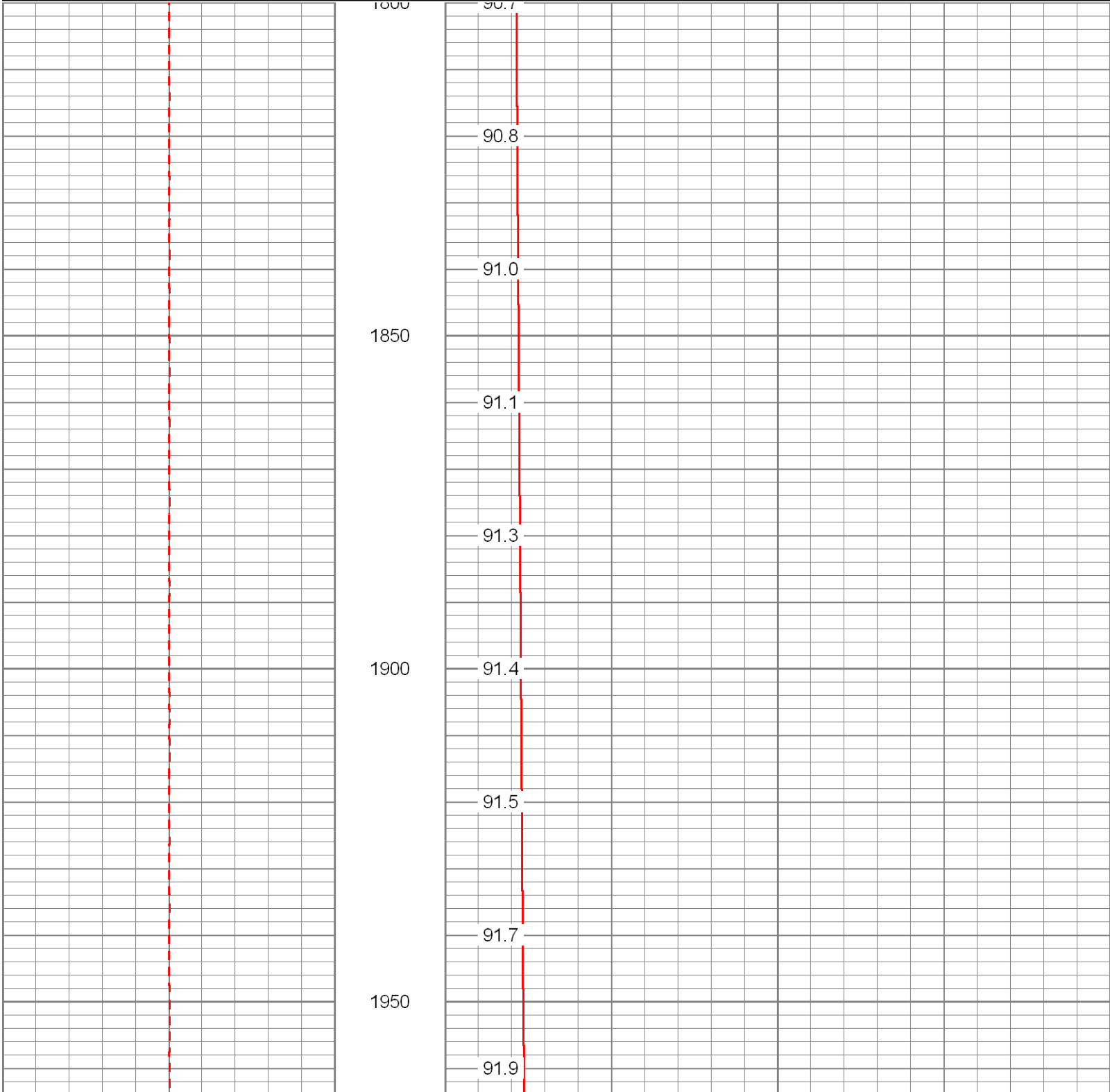
EMPERATUR
(degF)

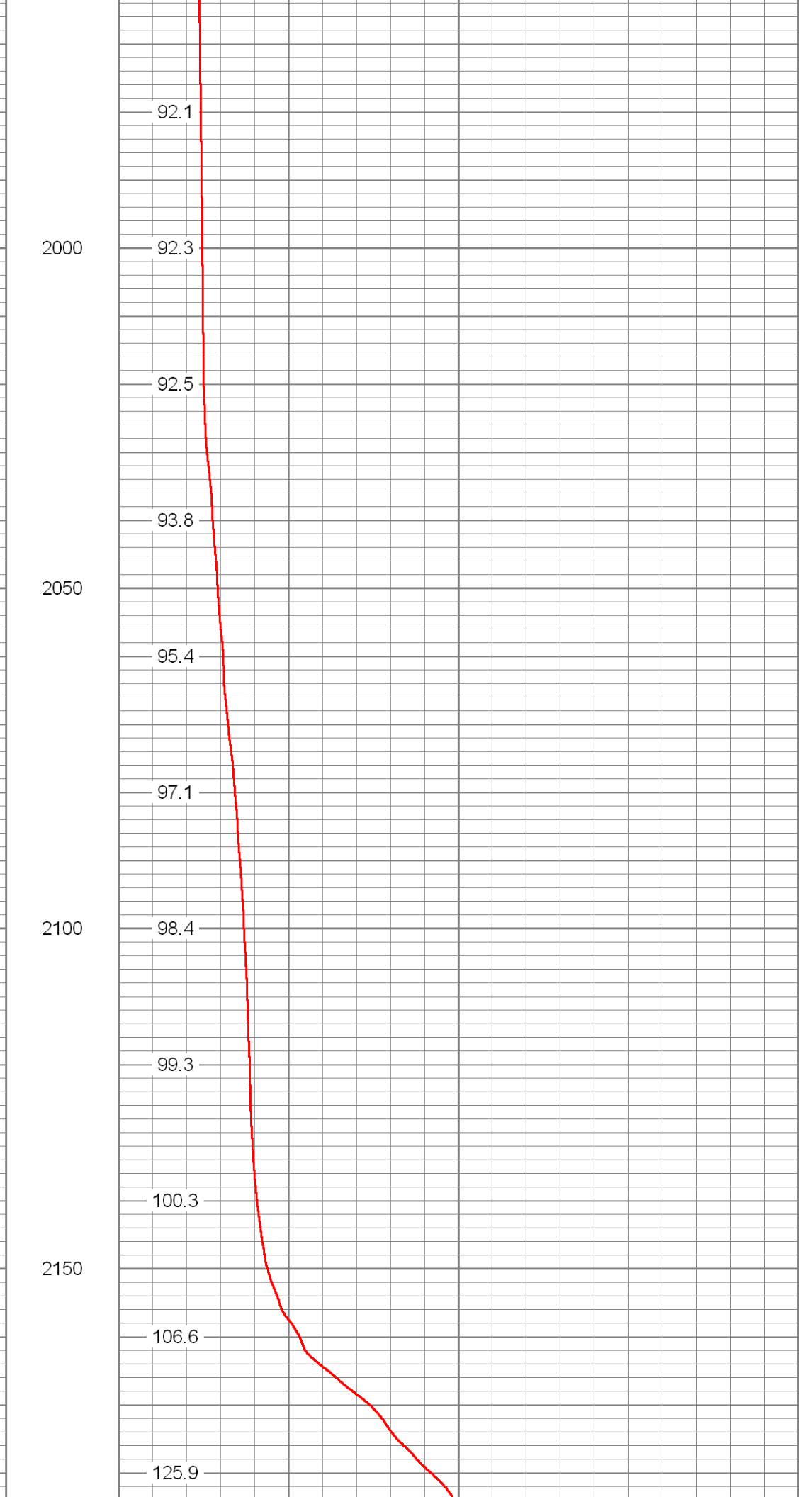
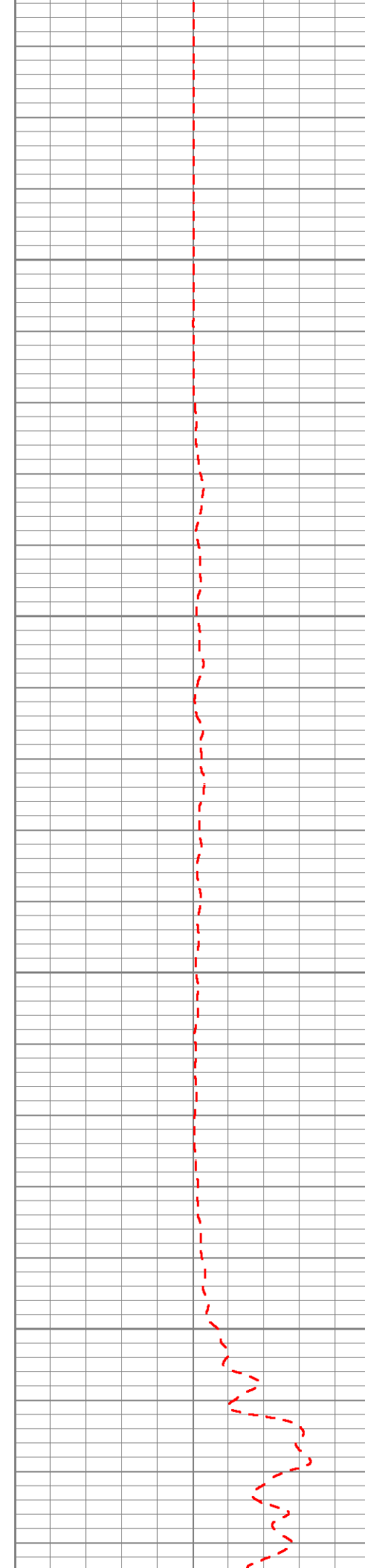


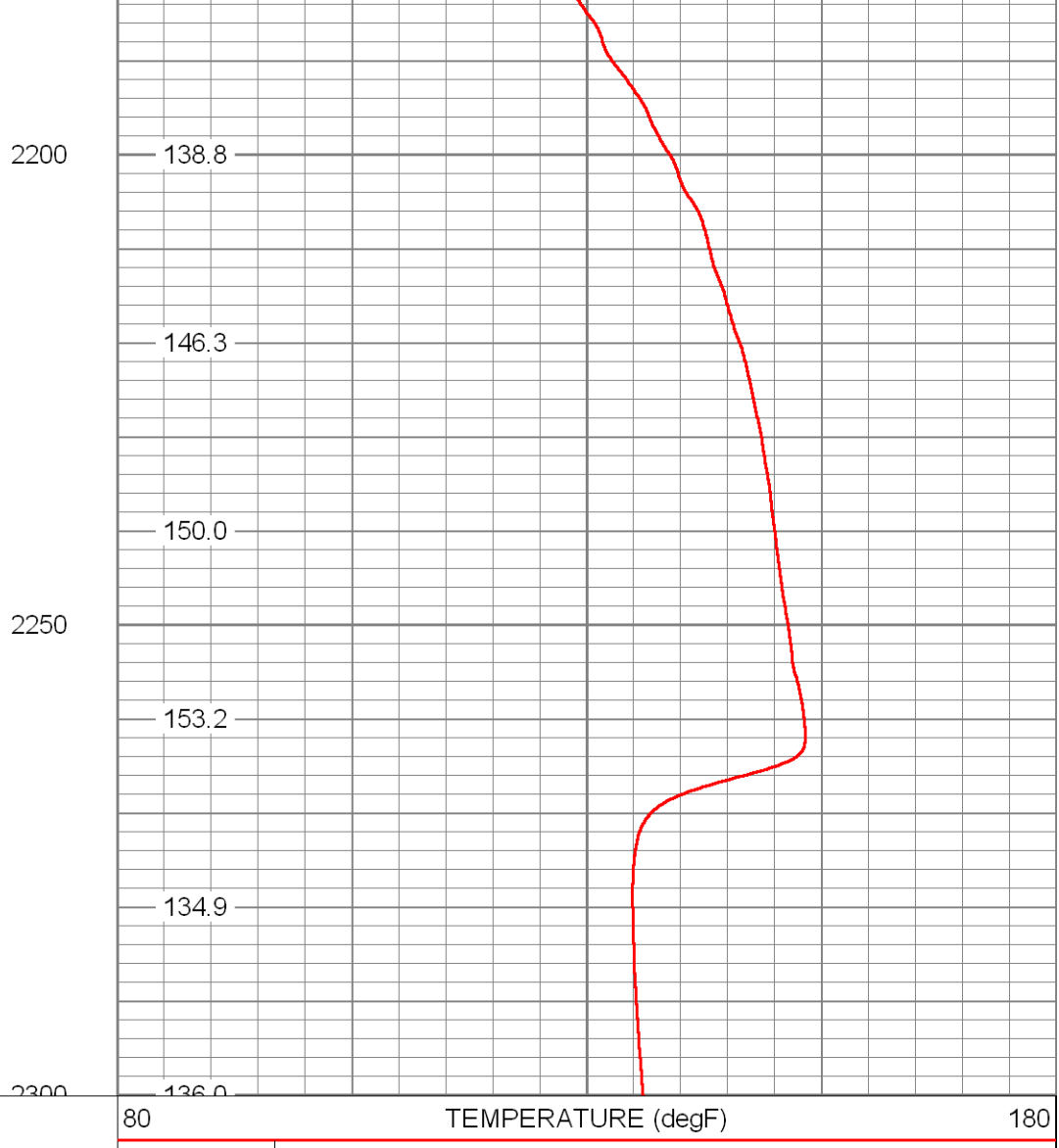
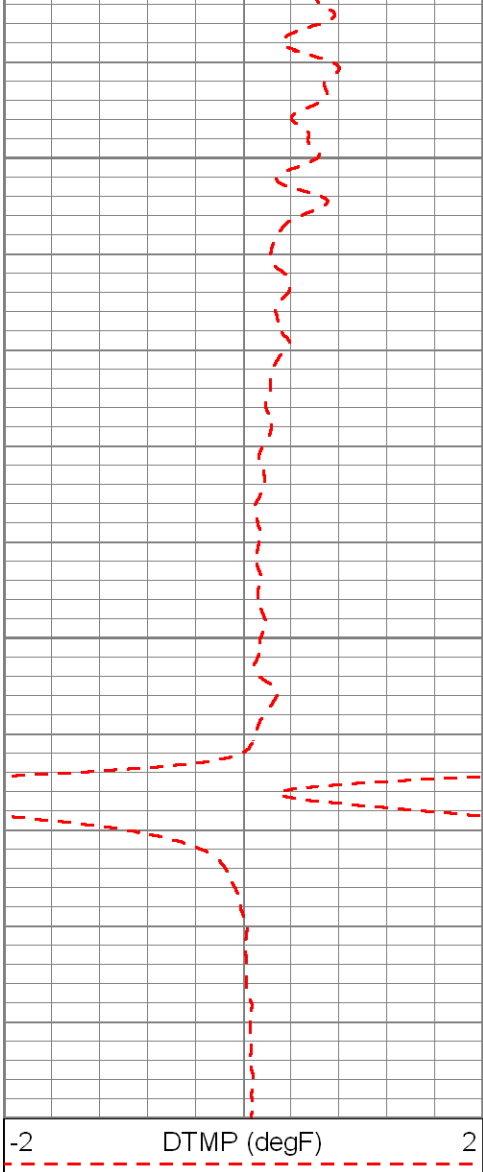
TEMP STAGE 4

Database File: leelfiw1.db
 Dataset Pathname: run9/temp4
 Presentation Format: temp
 Dataset Creation: Sun Apr 03 14:31:53 2011 by Log Open-Cased 100827
 Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	80	TEMPERATURE (degF)	180
			EMPERATUR		
			(degF)		







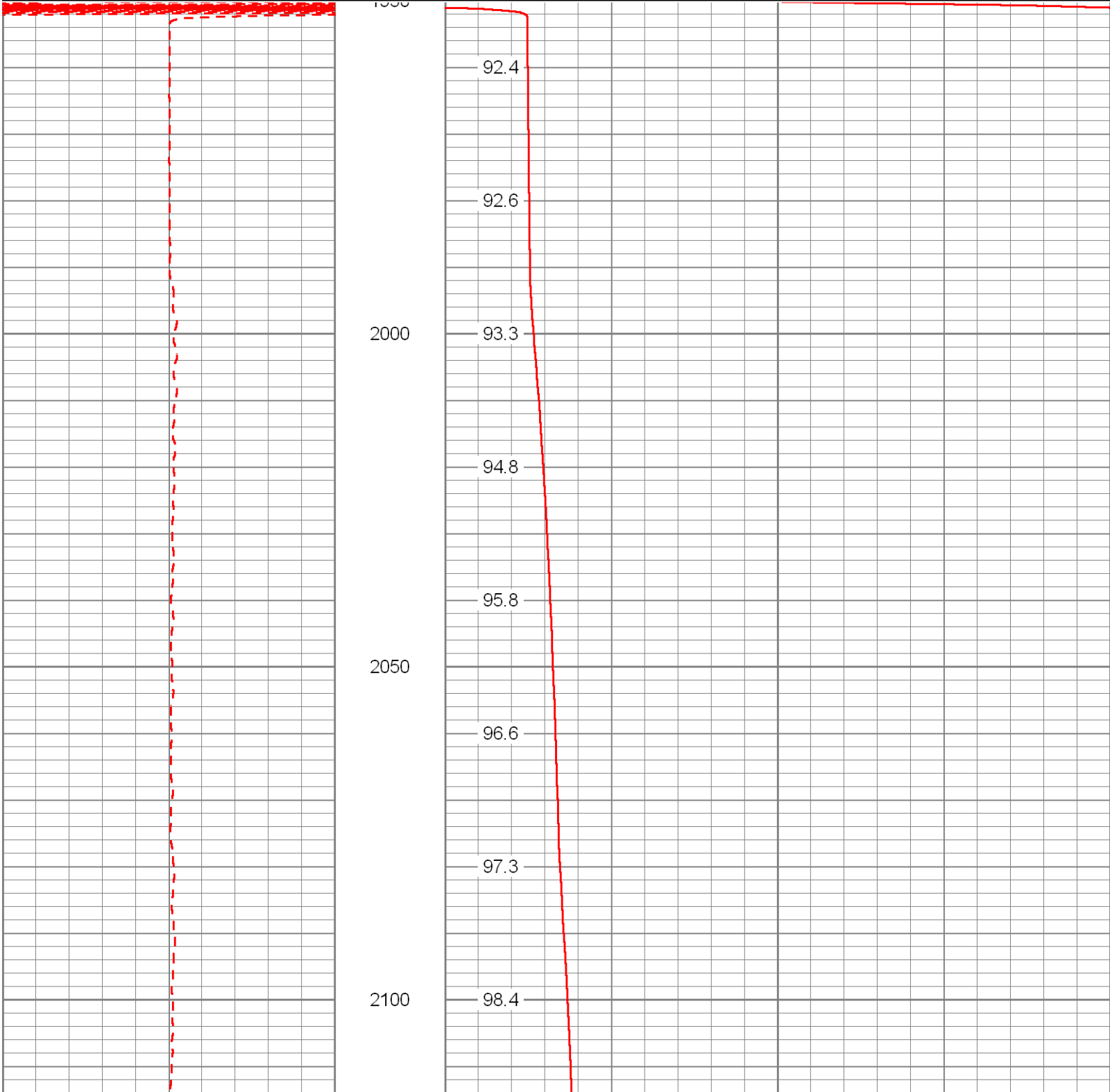
TEMPERATUR
(degF)

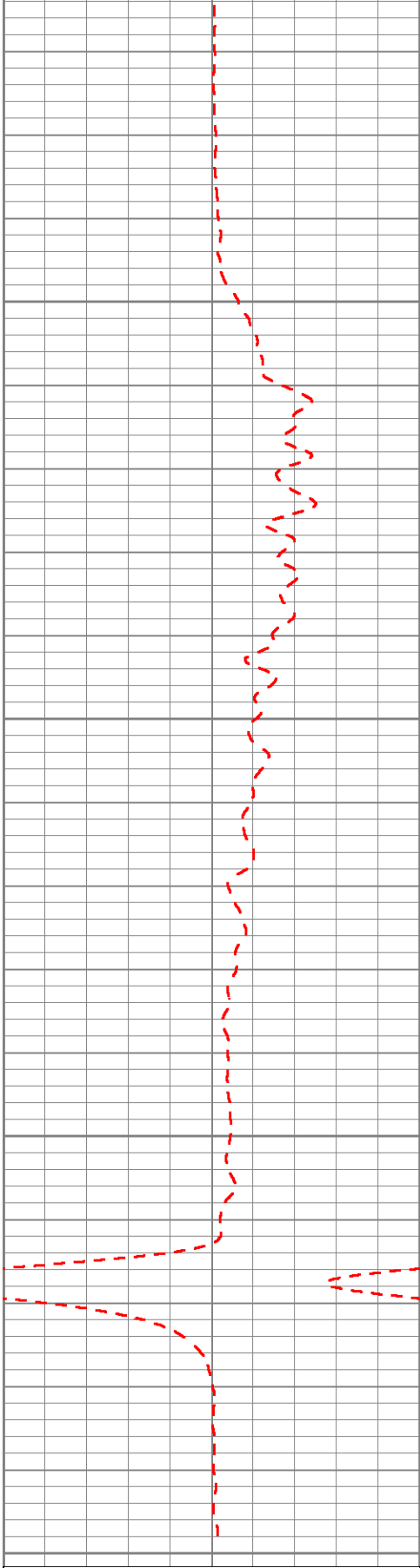


TEMP STAGE 5

Database File: leelfiw1.db
Dataset Pathname: run9/temp5
Presentation Format: temp
Dataset Creation: Sun Apr 03 18:40:35 2011 by Log Open-Cased 100827
Charted by: Depth in Feet scaled 1:240

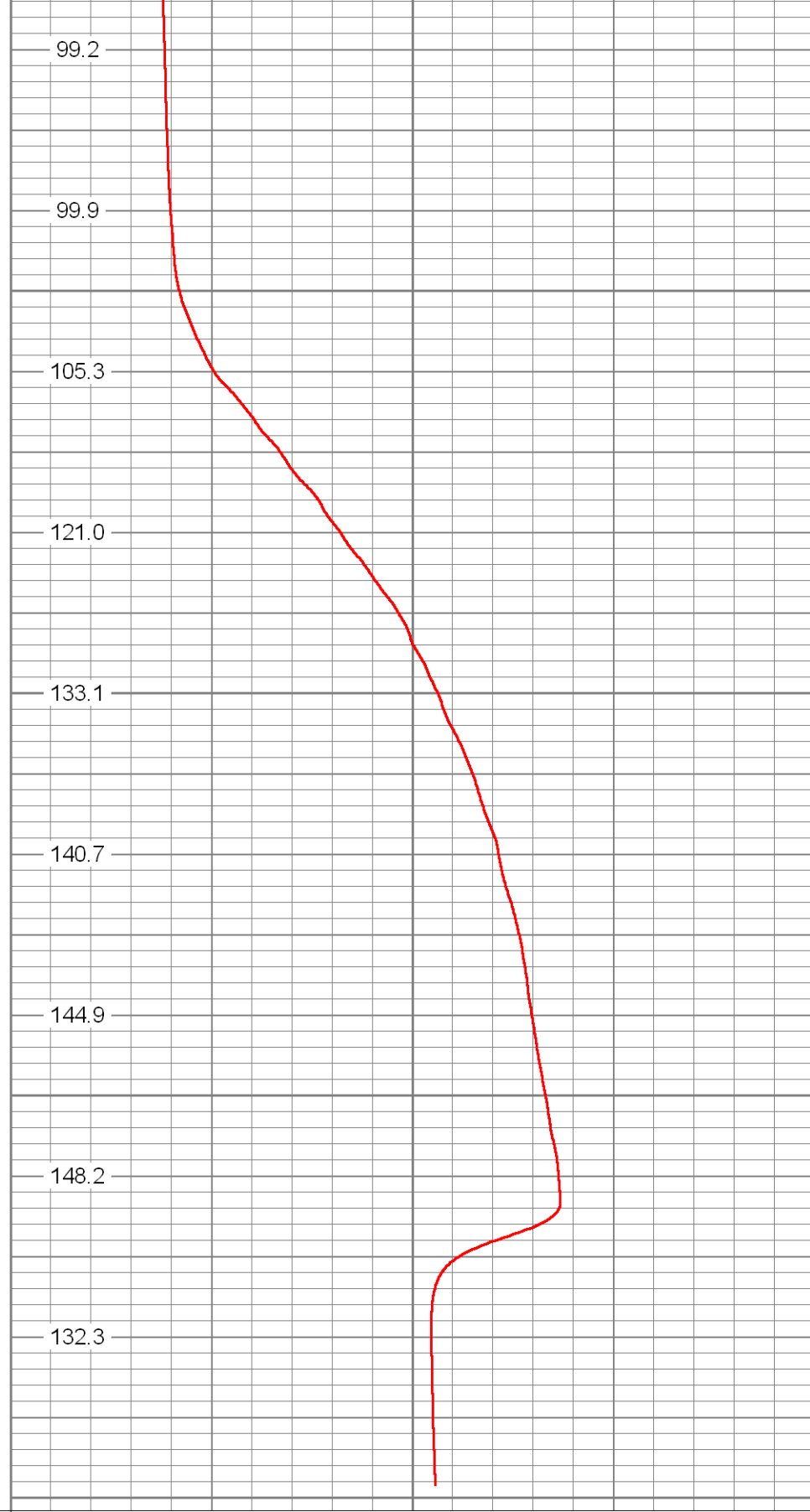
-2	DTMP (degF)	2	80	TEMPERATURE (degF)	180
			EMPERATUR		
			(degF)		





2150
2200
2250
2300

-2 DTMP (degF) 2



99.2
99.9
105.3
121.0
133.1
140.7
144.9
148.2
132.3

80 TEMPERATURE (degF) 180

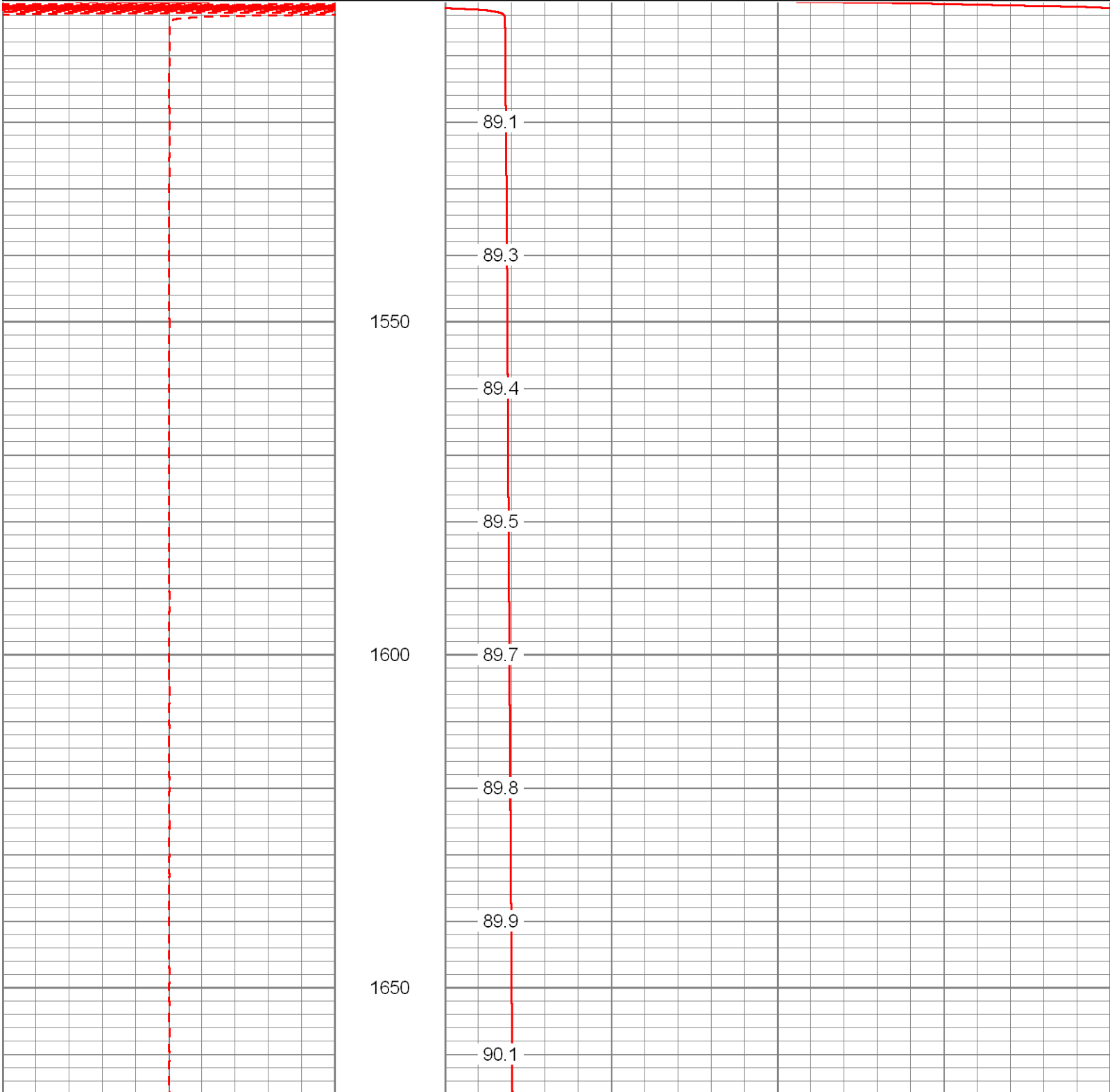
TEMPERATUR
(degF)

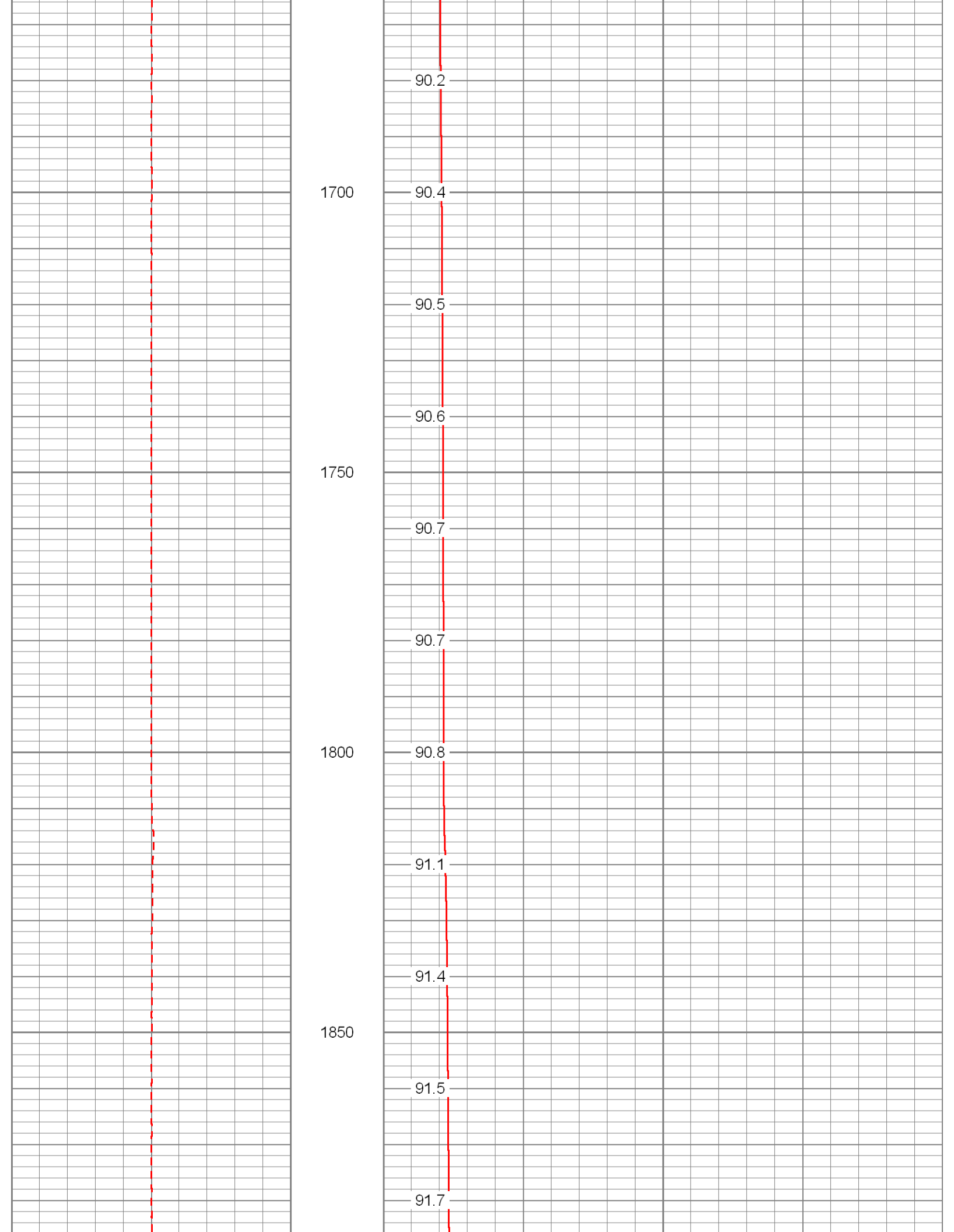


TEMP STAGE 10

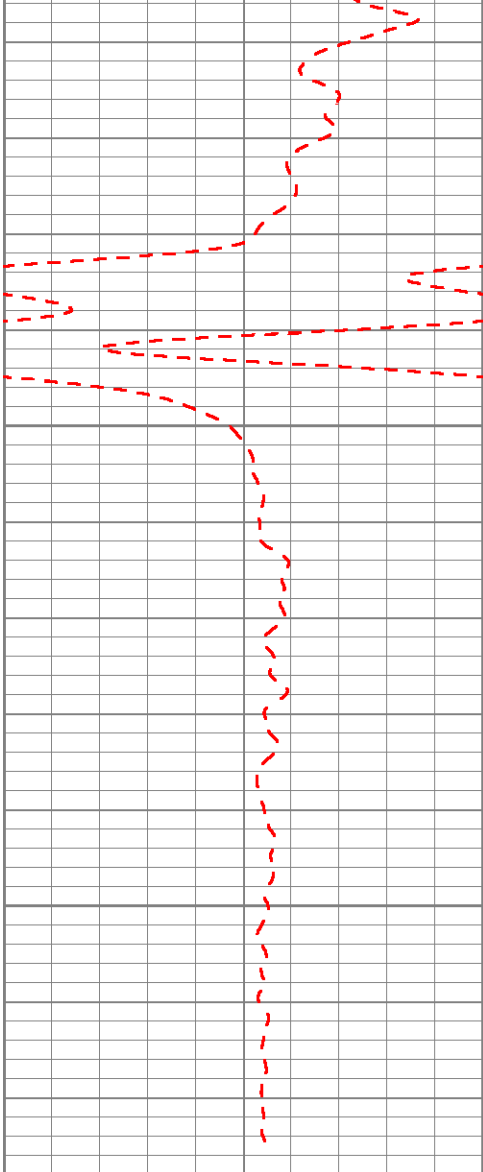
Database File: leelfiw1.db
Dataset Pathname: run9/temp6
Presentation Format: temp
Dataset Creation: Tue Apr 05 00:07:42 2011 by Log Open-Cased 100827
Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	80	TEMPERATURE (degF)	180
			EMPERATUR		
			(degF)		





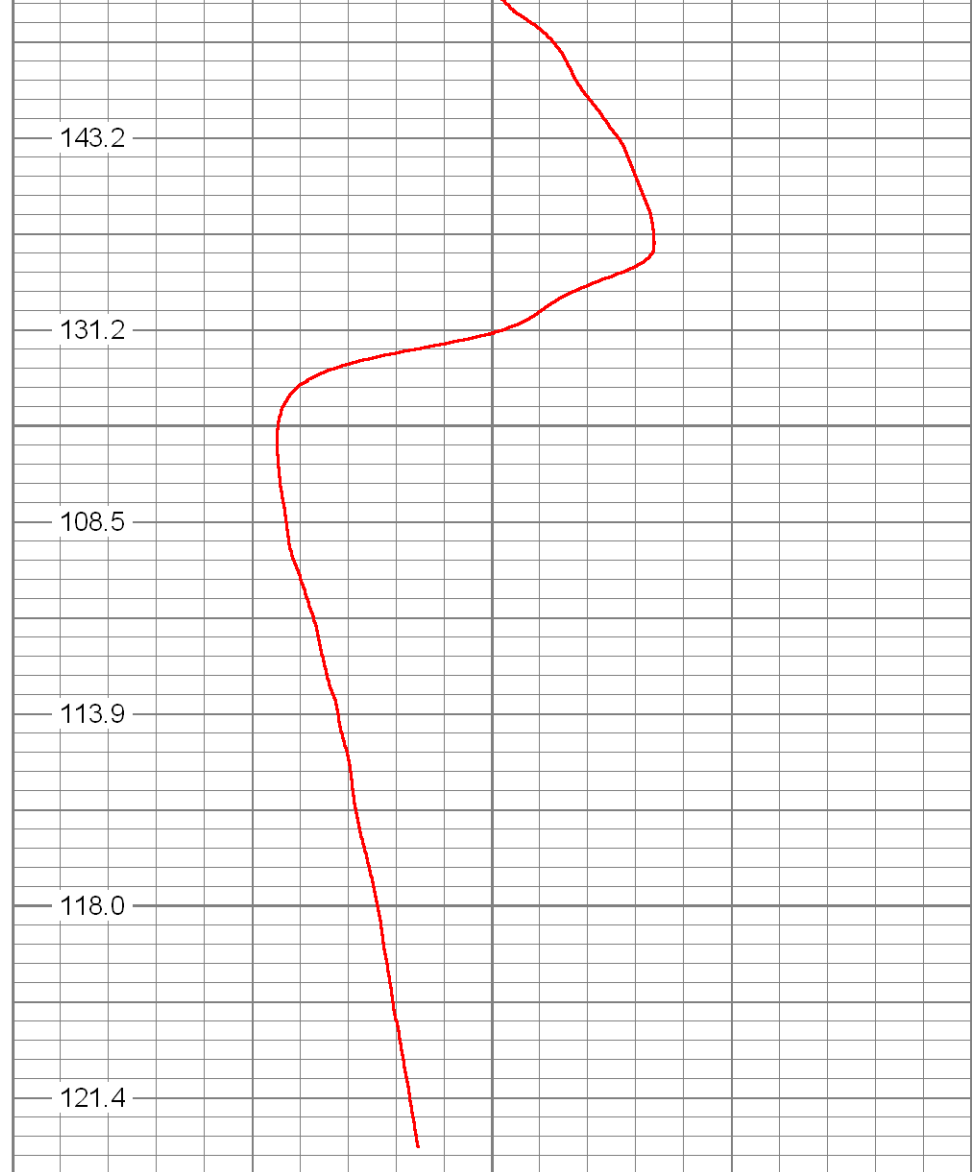




2150

2200

-2 DTMP (degF) 2



143.2

131.2

108.5

113.9

118.0

121.4

80 TEMPERATURE (degF) 180

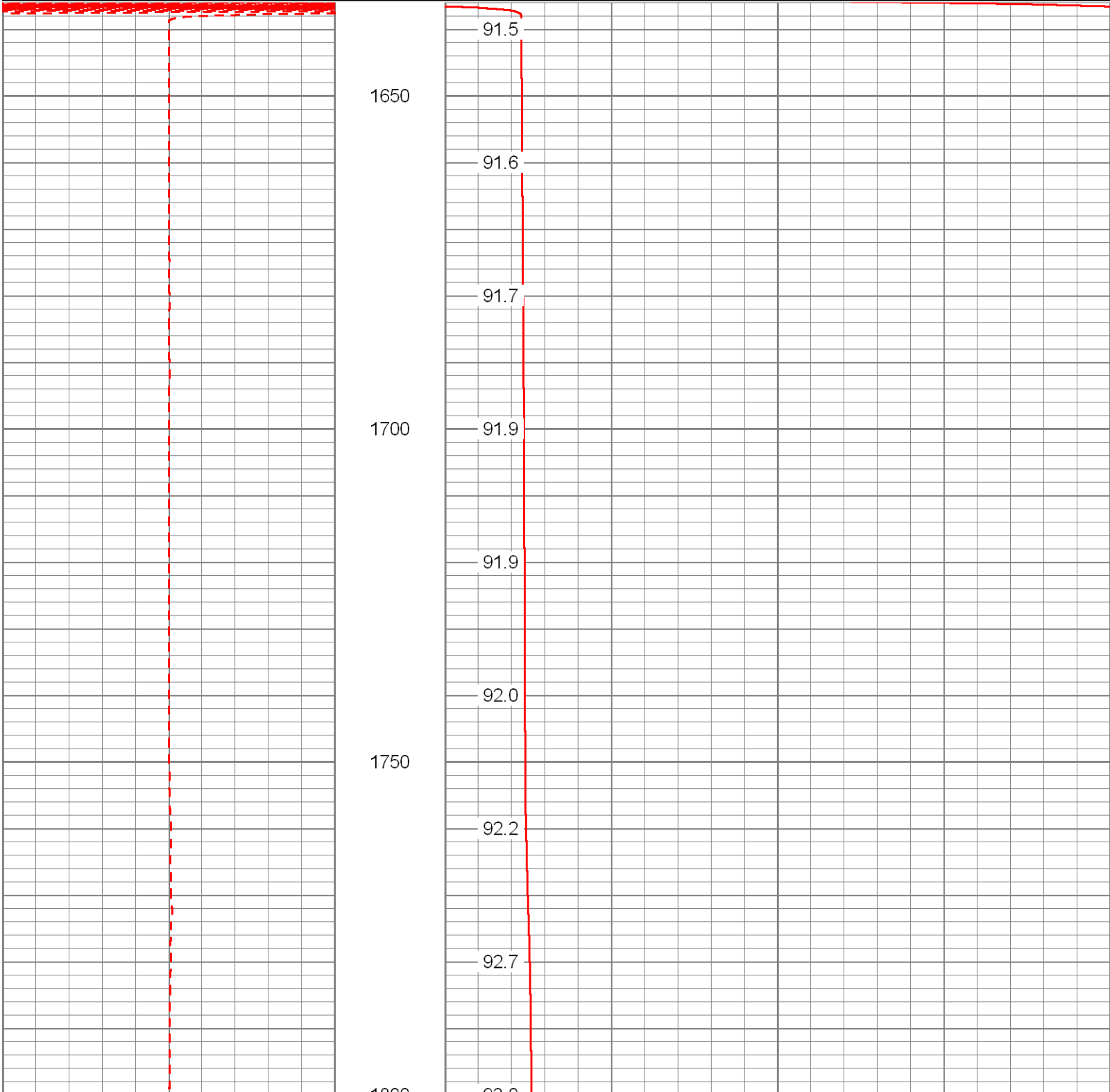
TEMPERATUR
(degF)

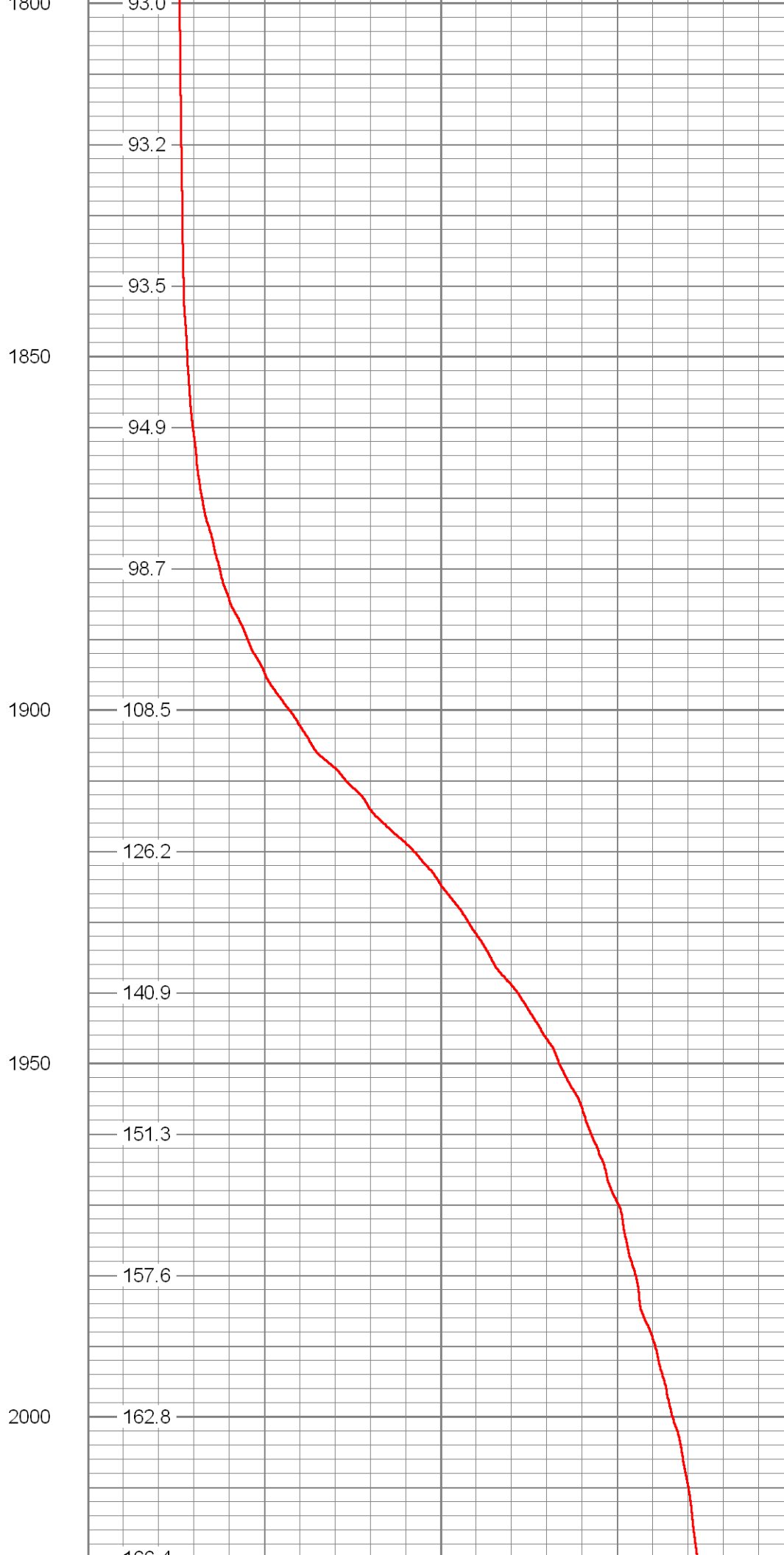
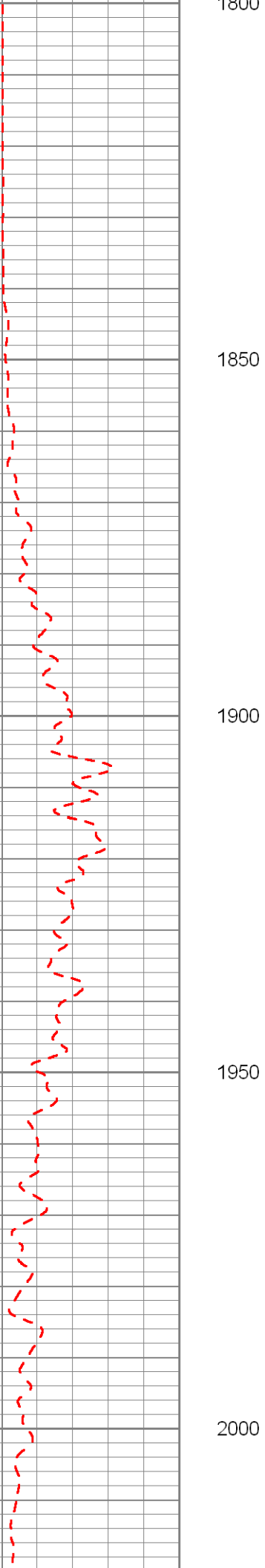


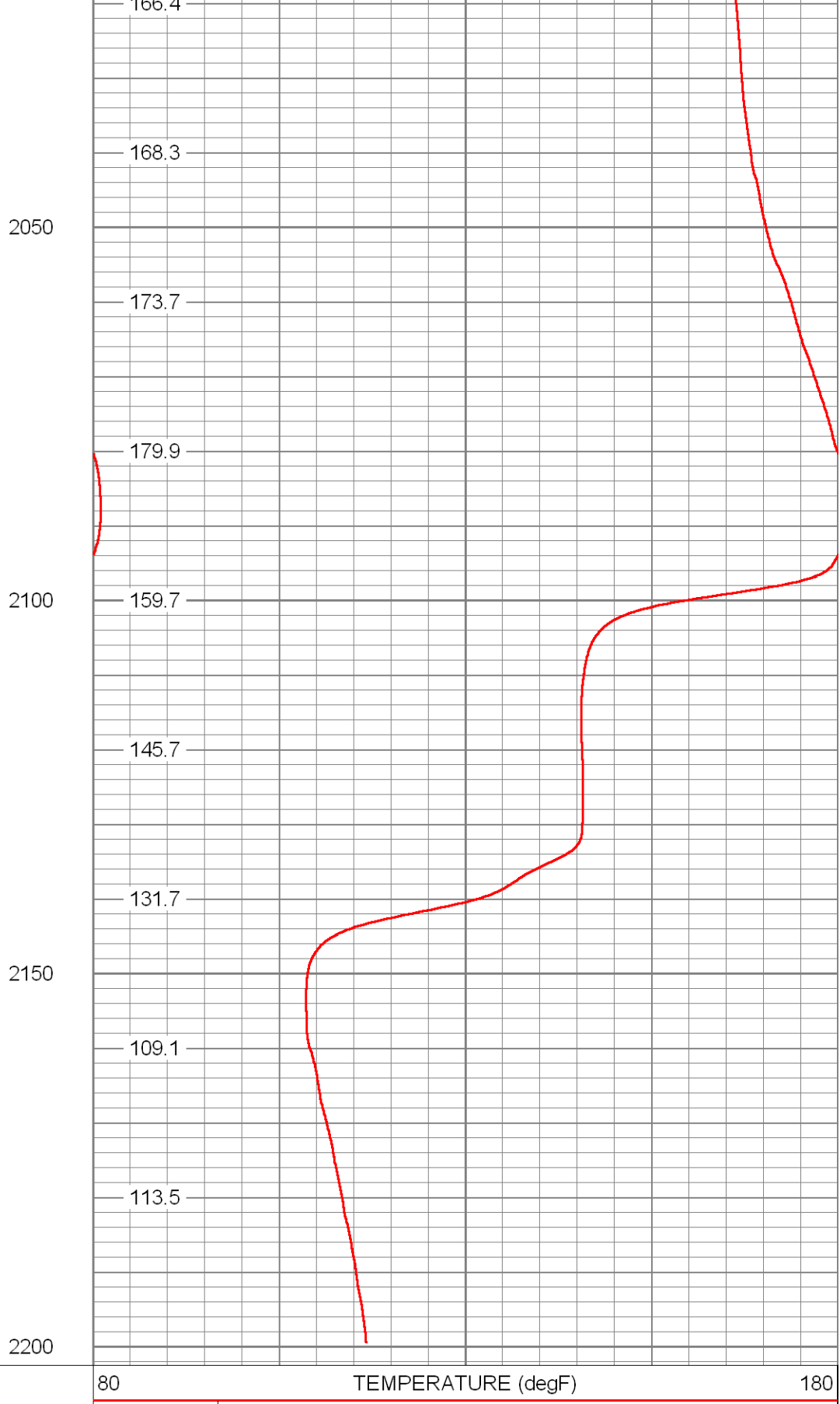
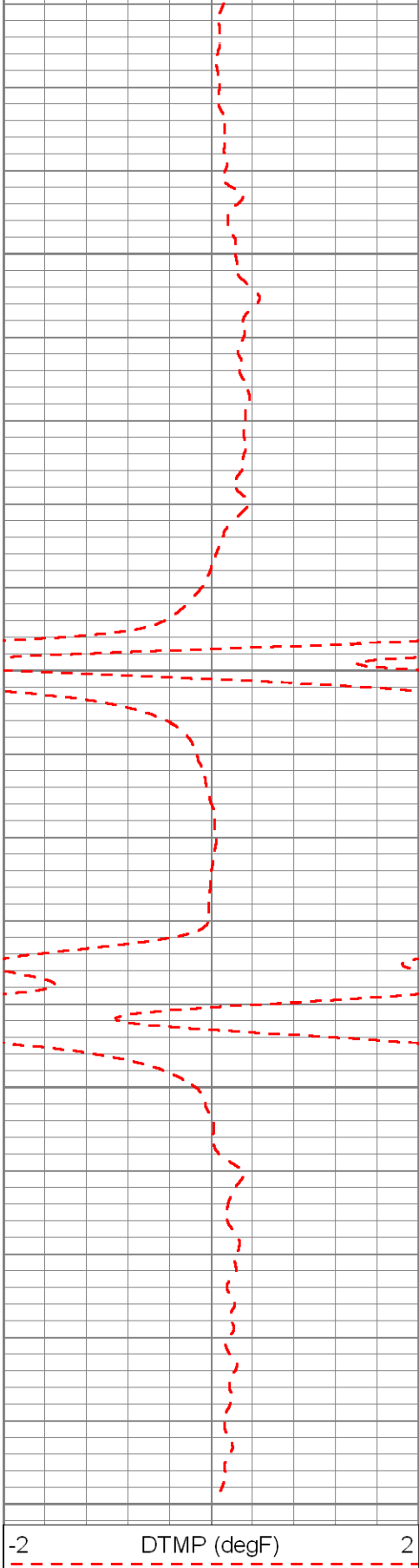
TEMP STAGE 11

Database File: leelfiw1.db
Dataset Pathname: run9/temp11
Presentation Format: temp
Dataset Creation: Tue Apr 05 10:09:32 2011 by Log Open-Cased 100827
Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	80	TEMPERATURE (degF)	180
			TEMPERATUR		
			(degF)		







-2 DTMP (degF) 2

80 TEMPERATURE (degF) 180

EMPERATUR
(degF)

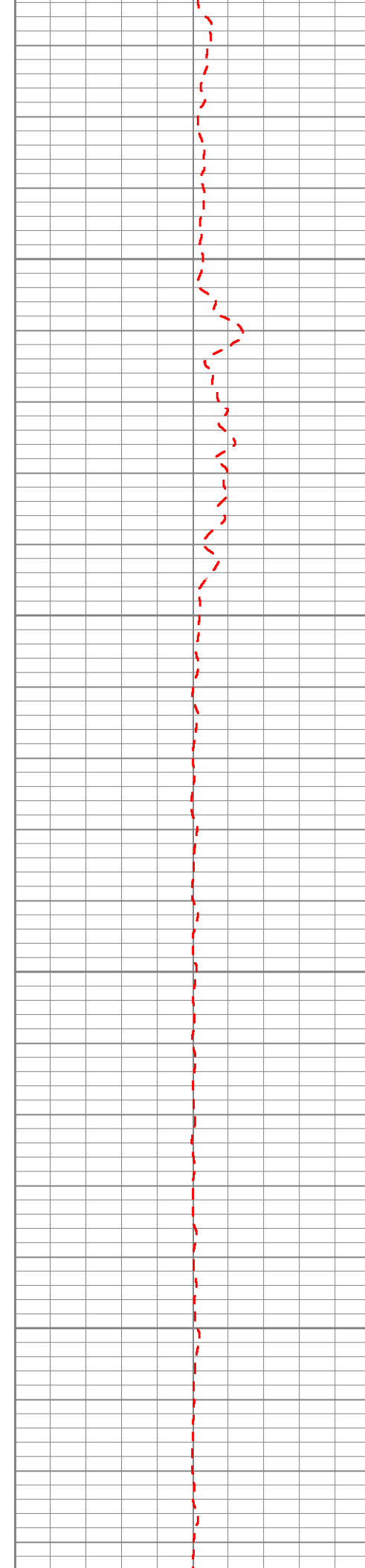


TEMP STAGE 12

Database File: leelfiw1.db
Dataset Pathname: run9/temp12
Presentation Format: temp
Dataset Creation: Tue Apr 05 22:45:49 2011 by Log Open-Cased 100827
Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	80	TEMPERATURE (degF)	180
			EMPERATUR		
			(degF)		





200

250

300

350

123.7

125.8

131.0

137.7

139.7

140.1

140.5

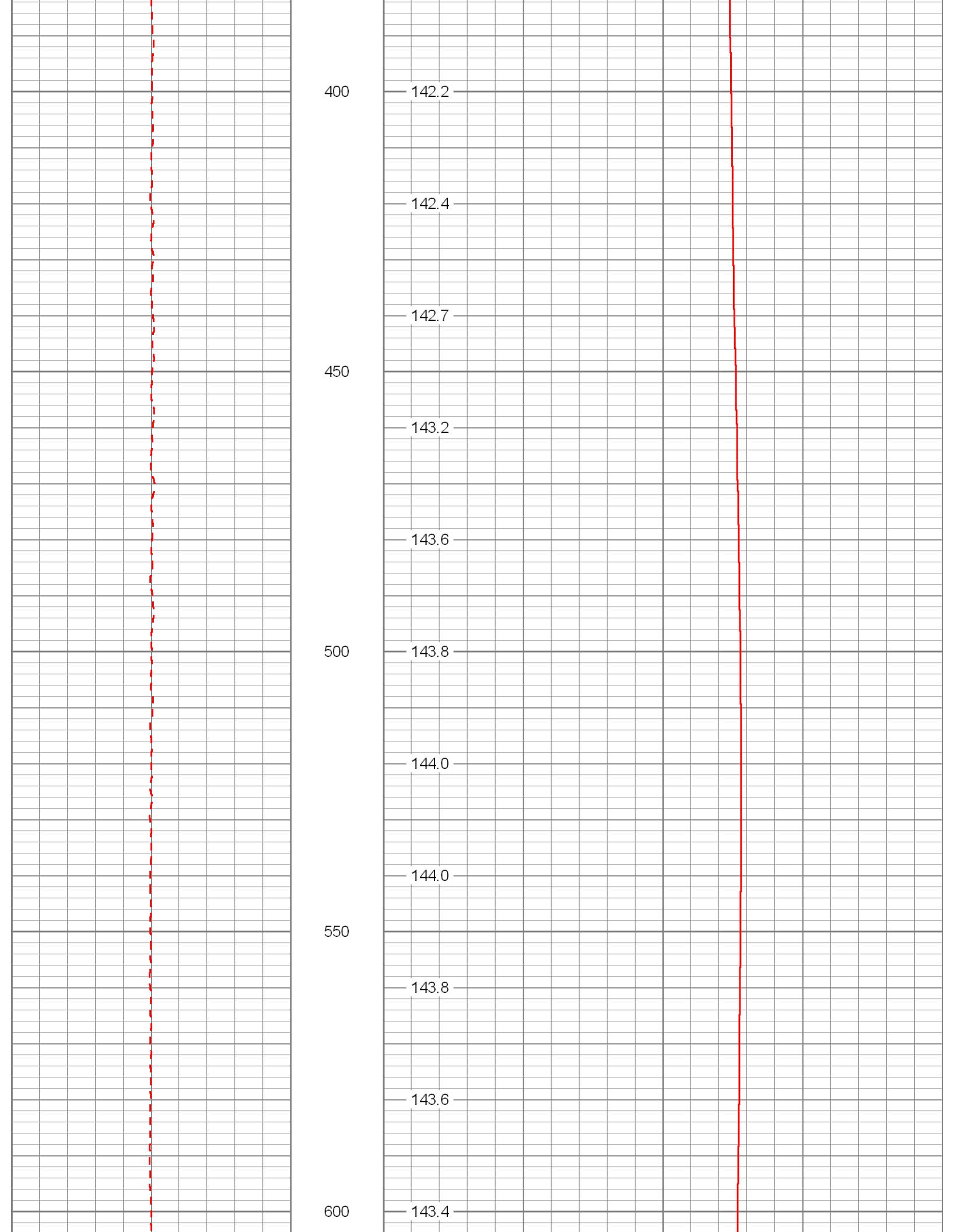
140.8

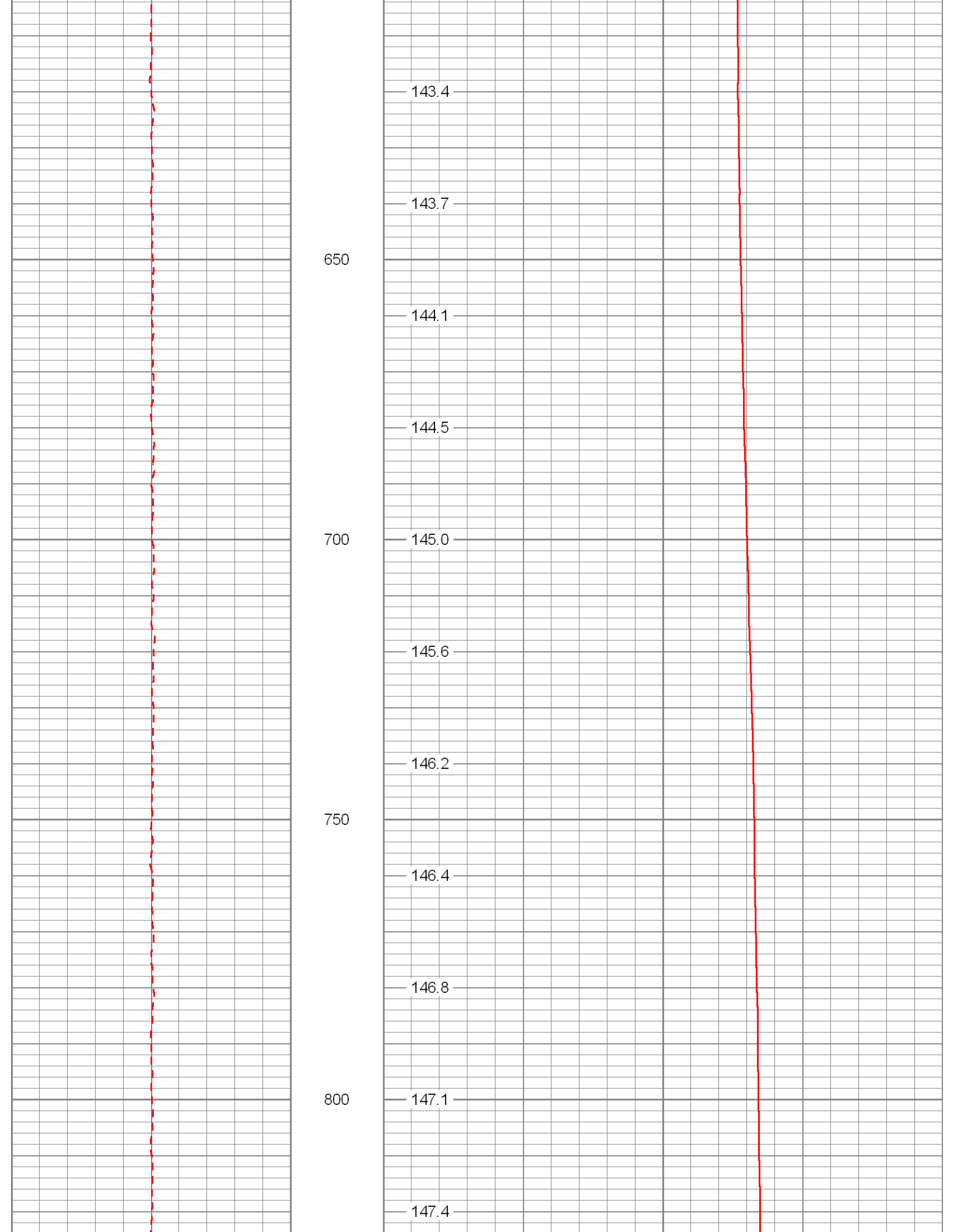
141.0

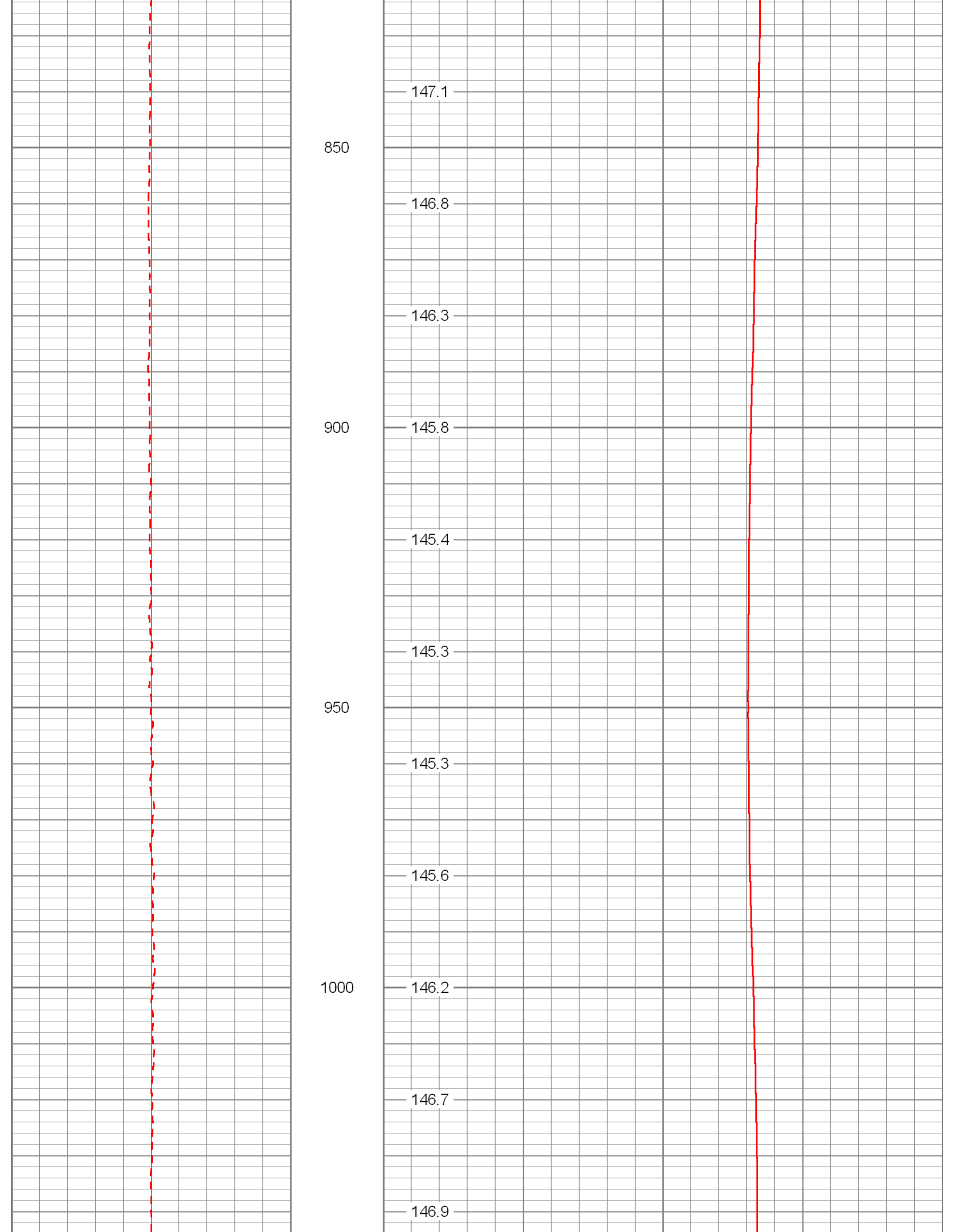
141.6

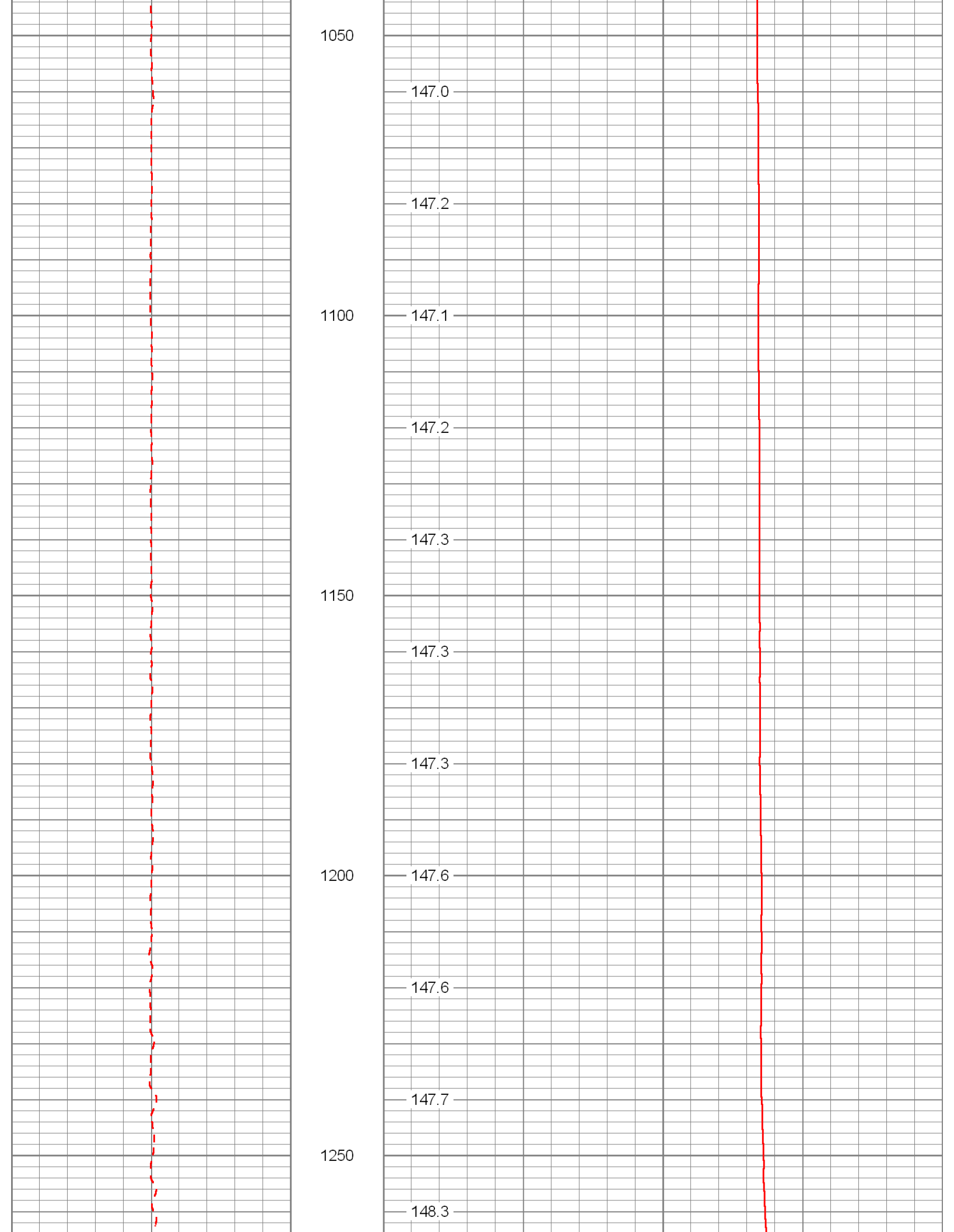
141.9

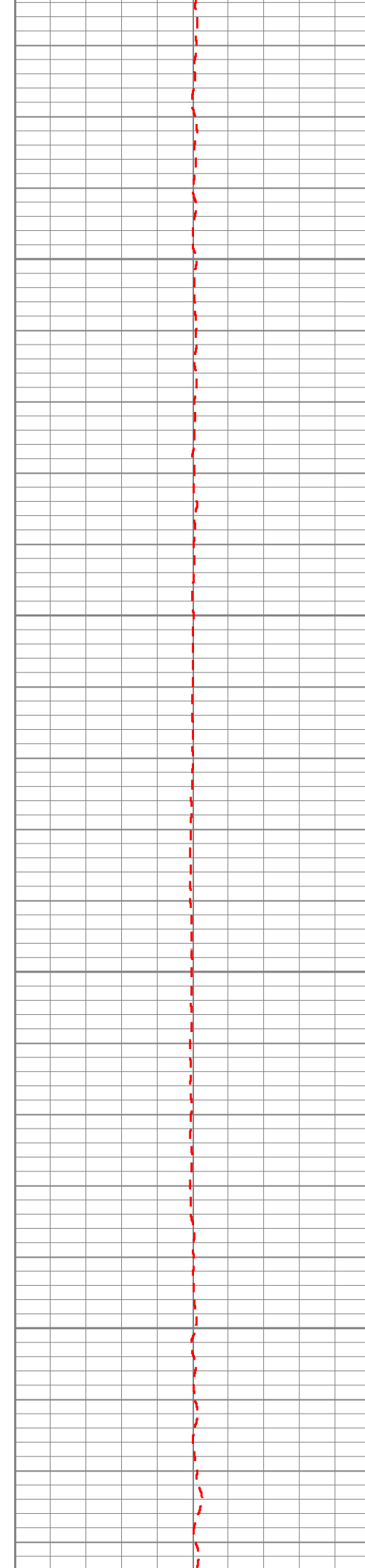












1300

1350

1400

1450

148.9

149.4

150.0

150.4

150.6

150.5

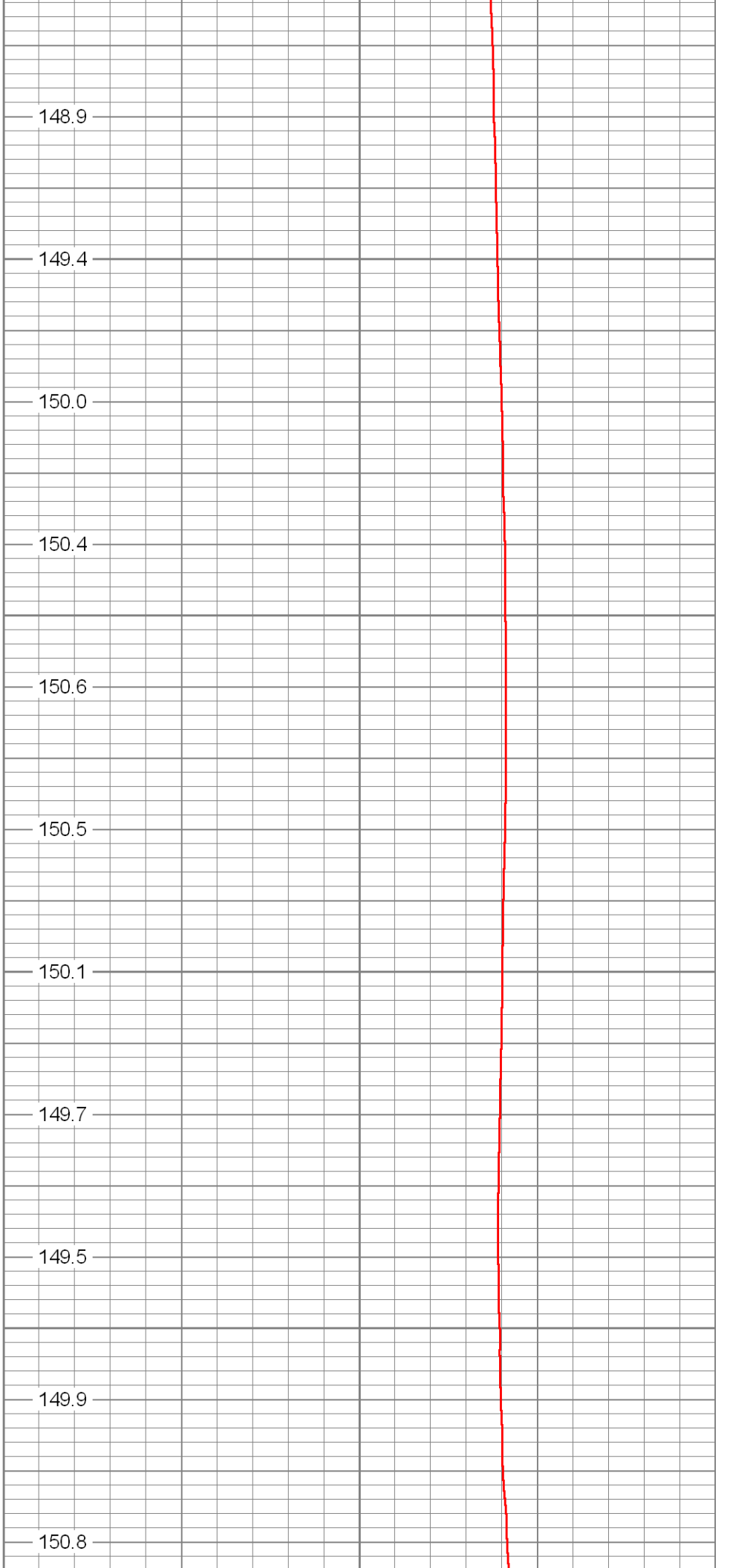
150.1

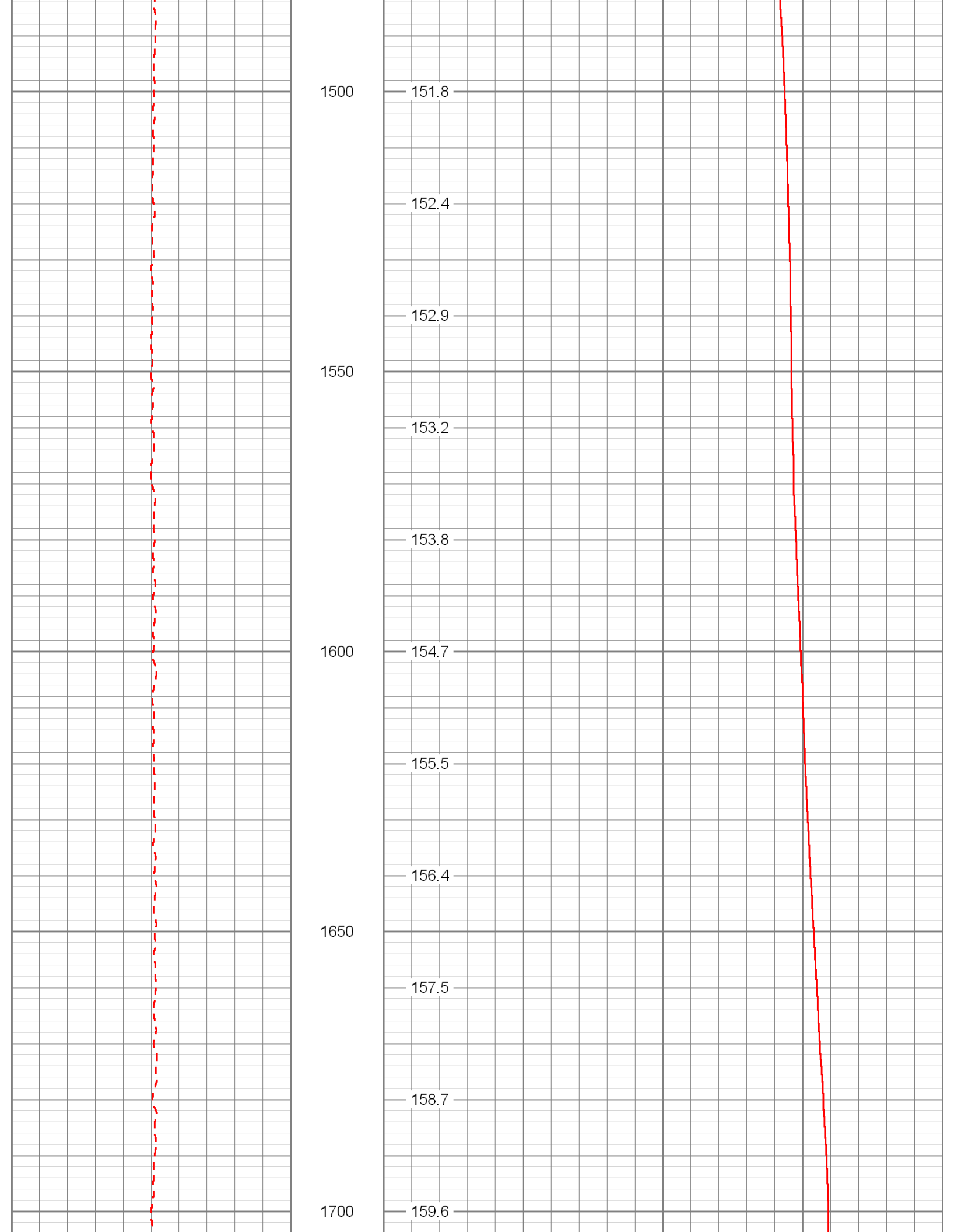
149.7

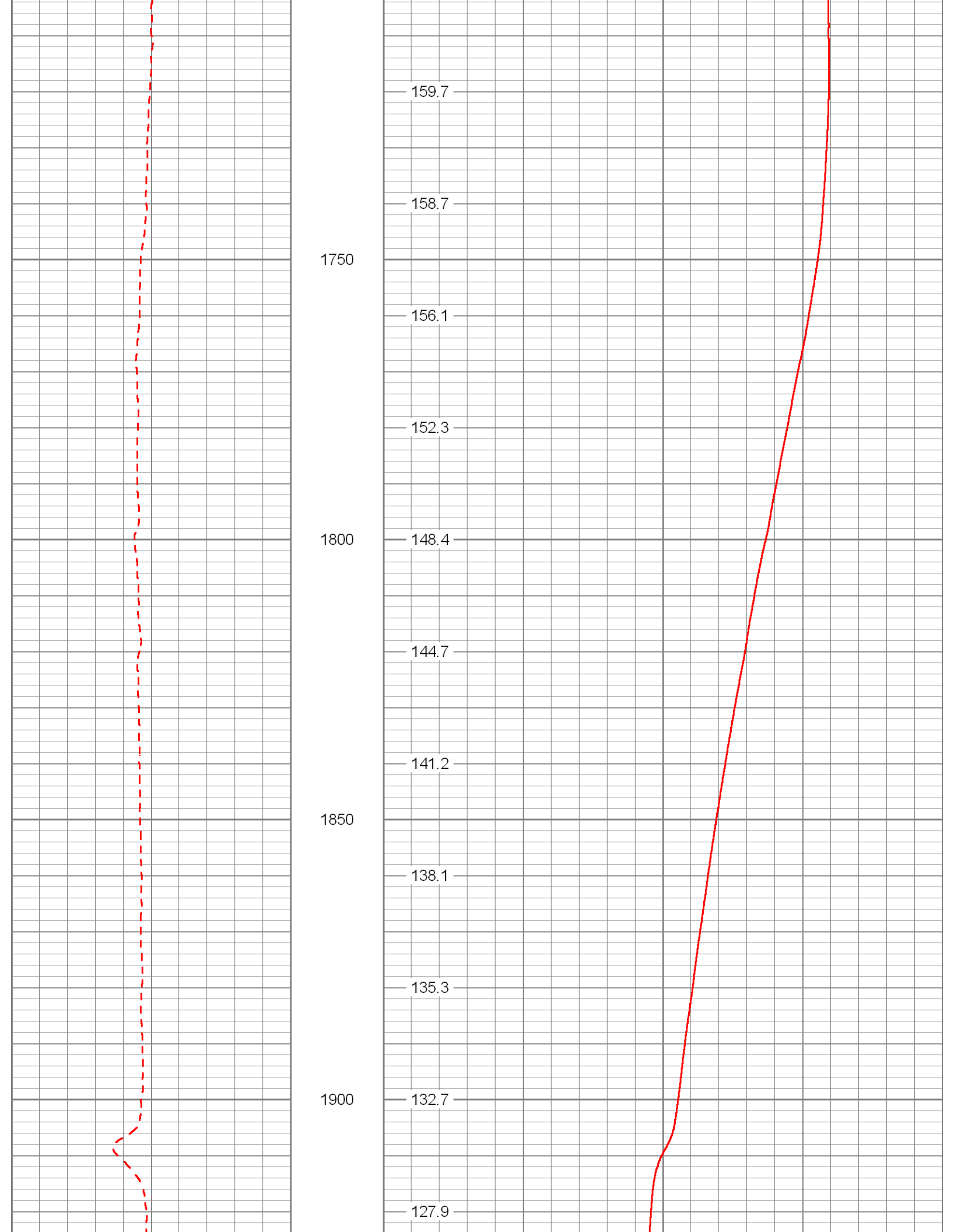
149.5

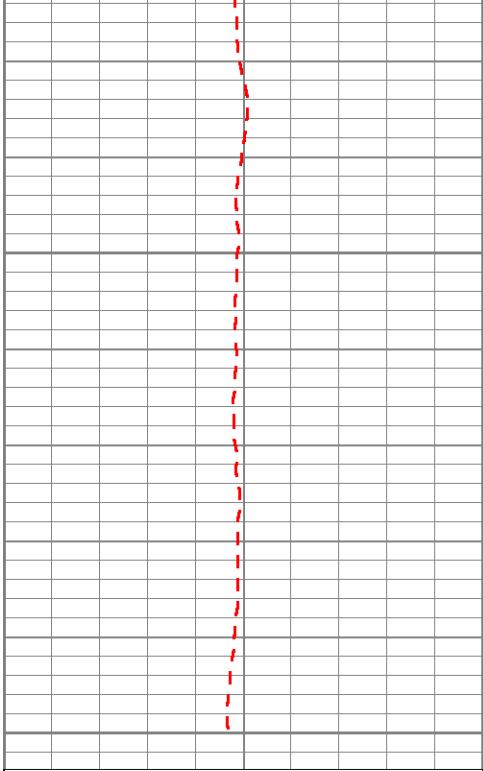
149.9

150.8









1950

2000



-2 DTMP (degF) 2

80 TEMPERATURE (degF) 180

EMPERATUR
(degF)



**YOUNGQUIST
BROTHERS, Inc**
GEOPHYSICAL LOGGING DIVISION

**CEMENT TOP
TEMPERATURE
LOG**

Company LEE COUNTY REGIONAL SWDF
Well IW-1
Field SOLID WASTE DISPOSAL FACILITY
County HENDRY
State FL

Company LEE COUNTY REGIONAL SWDF
Well IW-1
Field SOLID WASTE DISPOSAL FACILITY
County HENDRY State FL

Location: API #: _____
Permanent Datum _____ Elevation _____
Log Measured From _____
Drilling Measured From _____
SEC TWP RGE
Other Services
SEE
COMMENTS
Elevation
K.B.
D.F.
G.L.

Date	5-APR-2011				
Run Number	Bit	From	To	Run No	To
Depth Driller	12.25"	SURFACE	1150'	FIVE	12.25"
Depth Logger	42.5"	CASING	1139'	SIX	14.75"
Bottom Logged Interval	12.25"	CASING	1945'	SEVEN	22"
Top Log Interval	32.5"	CASING	1945'		CASING
Open Hole Size					
Type Fluid					
Density / Viscosity					
Max. Recorded Temp.					
Estimated Cement Top					
Time Well Ready					
Time Logger on Bottom					
Equipment Number					
Location					
Recorded By					
Witnessed By					

<<< 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

Database File: leelfiw1.db
 Dataset Pathname: run9/temp1
 Presentation Format: ctI_mg
 Dataset Creation: Sat Apr 02 07:18:25 2011 by Log Open-Cased 100827
 Charted by: Depth in Feet scaled 1:600

20	X-Caliper (in)	40	80	TEMP - STAGE #1 (degF)	180
			80	TEMP-STAGE #2 (degF)	180
			80	TEMP-STAGE #3 (degF)	180
			80	TEMP-STAGE #4 (degF)	180
			80	TEMP-STAGE #5 (degF)	180
			80	TEMP-STAGE #10 (degF)	180
			80	TEMP-STAGE #11 (degF)	180
			80	TEMP-STAGE #12 (degF)	180



400

450

500

550

600

650

700

750

800

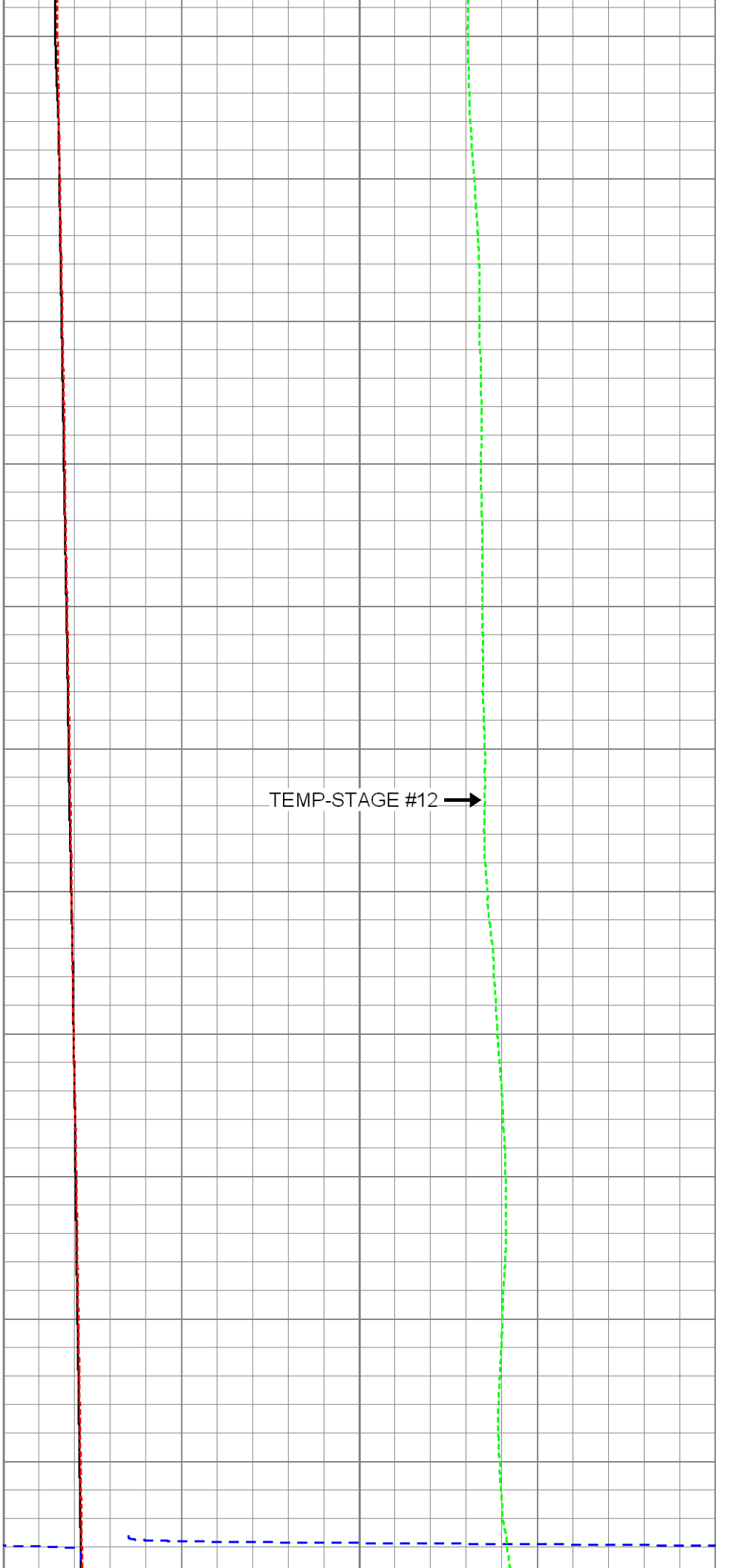
850

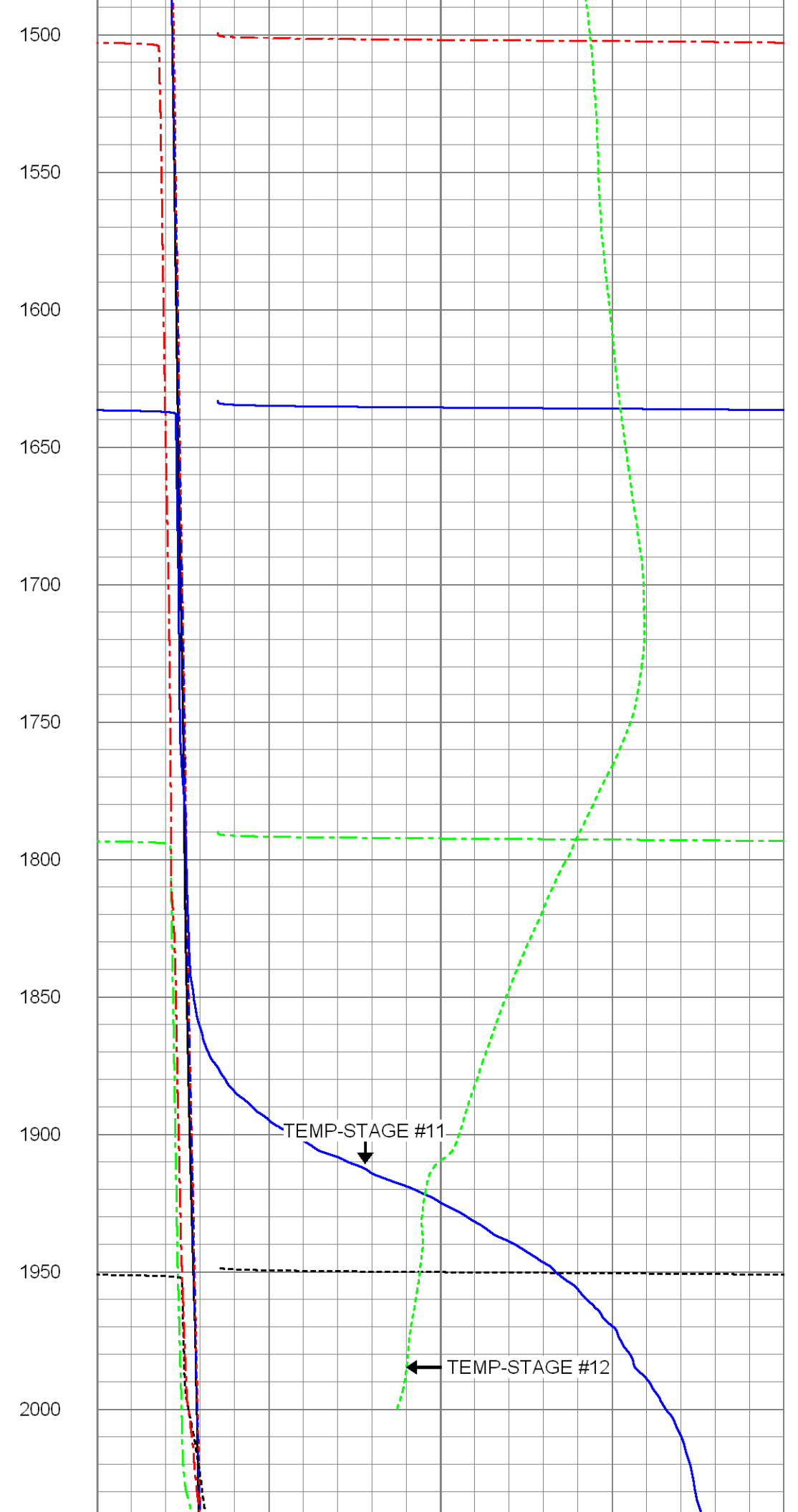
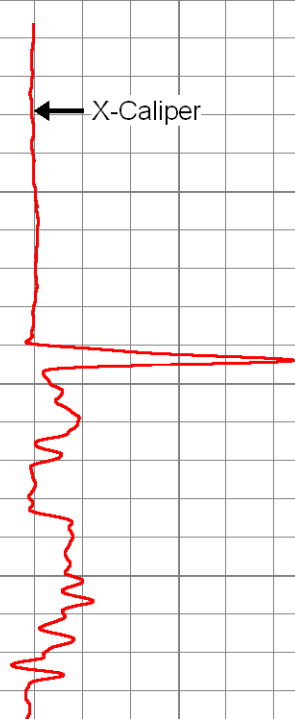
900

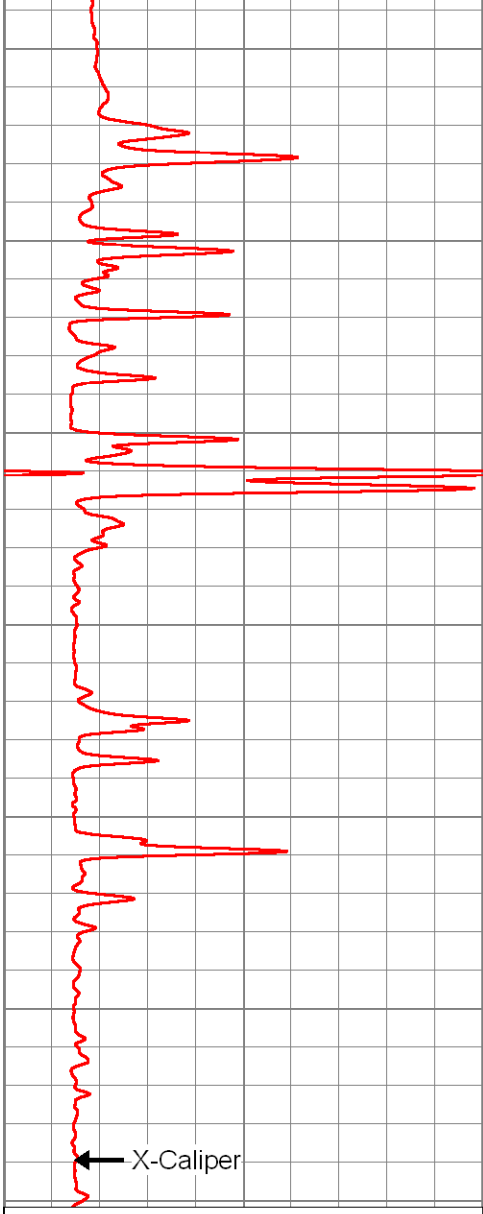


950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450

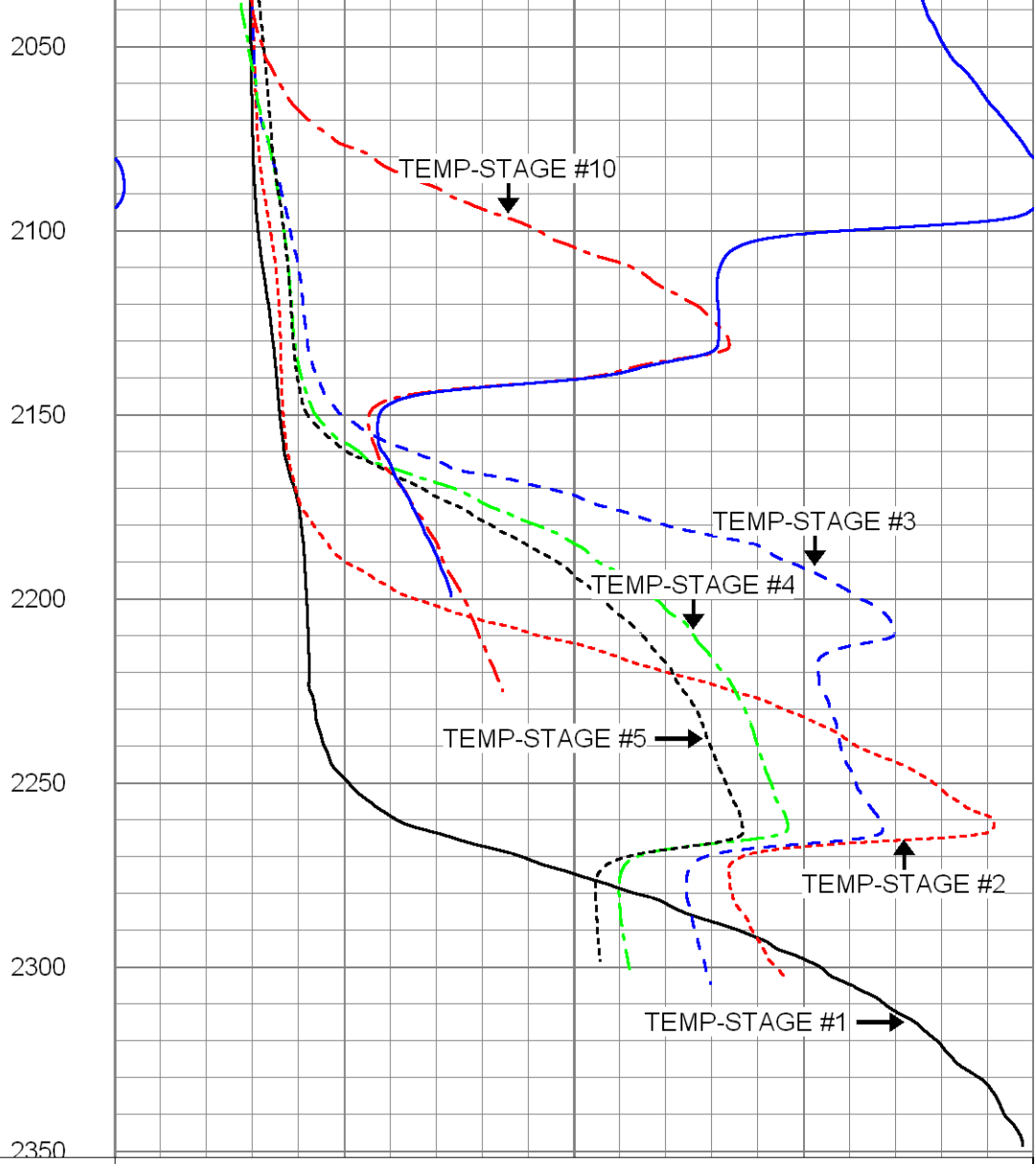
TEMP-STAGE #12 →







20 X-Caliper (in) 40



80	TEMP - STAGE #1 (degF)	180
80	TEMP-STAGE #2 (degF)	180
80	TEMP-STAGE #3 (degF)	180
80	TEMP-STAGE #4 (degF)	180
80	TEMP-STAGE #5 (degF)	180
80	TEMP-STAGE #10 (degF)	180
80	TEMP-STAGE #11 (degF)	180
80	TEMP-STAGE #12 (degF)	180

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			TEMP-MLS (18)	2.45	1.63	30.00

TEMP

0.25

Dataset: leelfiw1.db: field/well/run9/temp1
Total Length: 2.45 ft
Total Weight: 30.00 lb
O.D. 1.63 in

Calibration Report

Database File: leelfiw1.db
Dataset Pathname: run9/temp1
Dataset Creation: Sat Apr 02 07:18:25 2011 by Log Open-Cased 100827

Temperature Calibration Report

Serial Number: 18
Tool Model: MLS
Performed: Wed Mar 23 11:58:57 2011

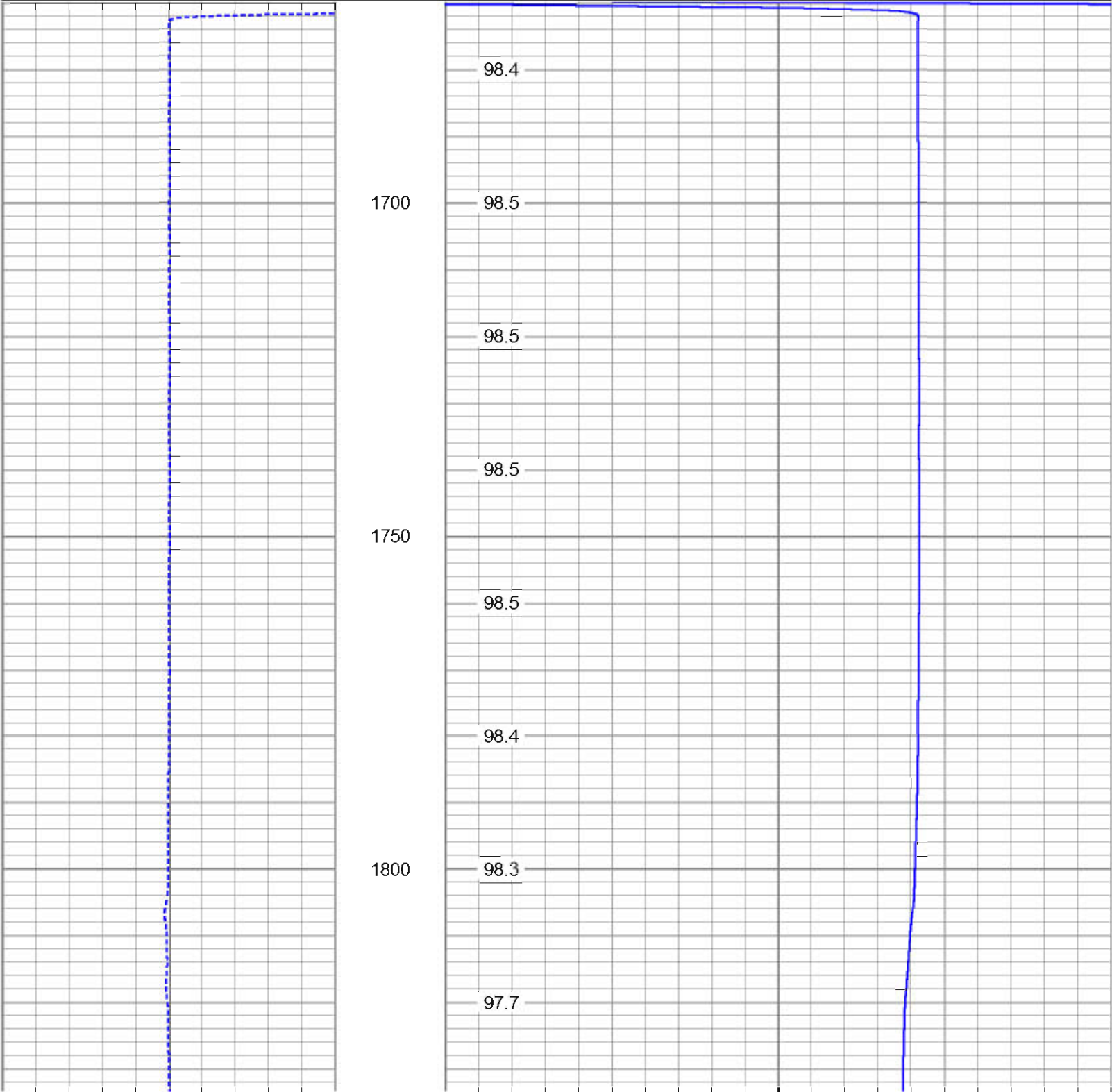
Point #	Reading		Reference	
1	321.31	cps	31.00	degF
2	772.16	cps	78.00	degF
3	2123.61	cps	212.00	degF
4		cps		degF
5		cps		degF
6		cps		degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

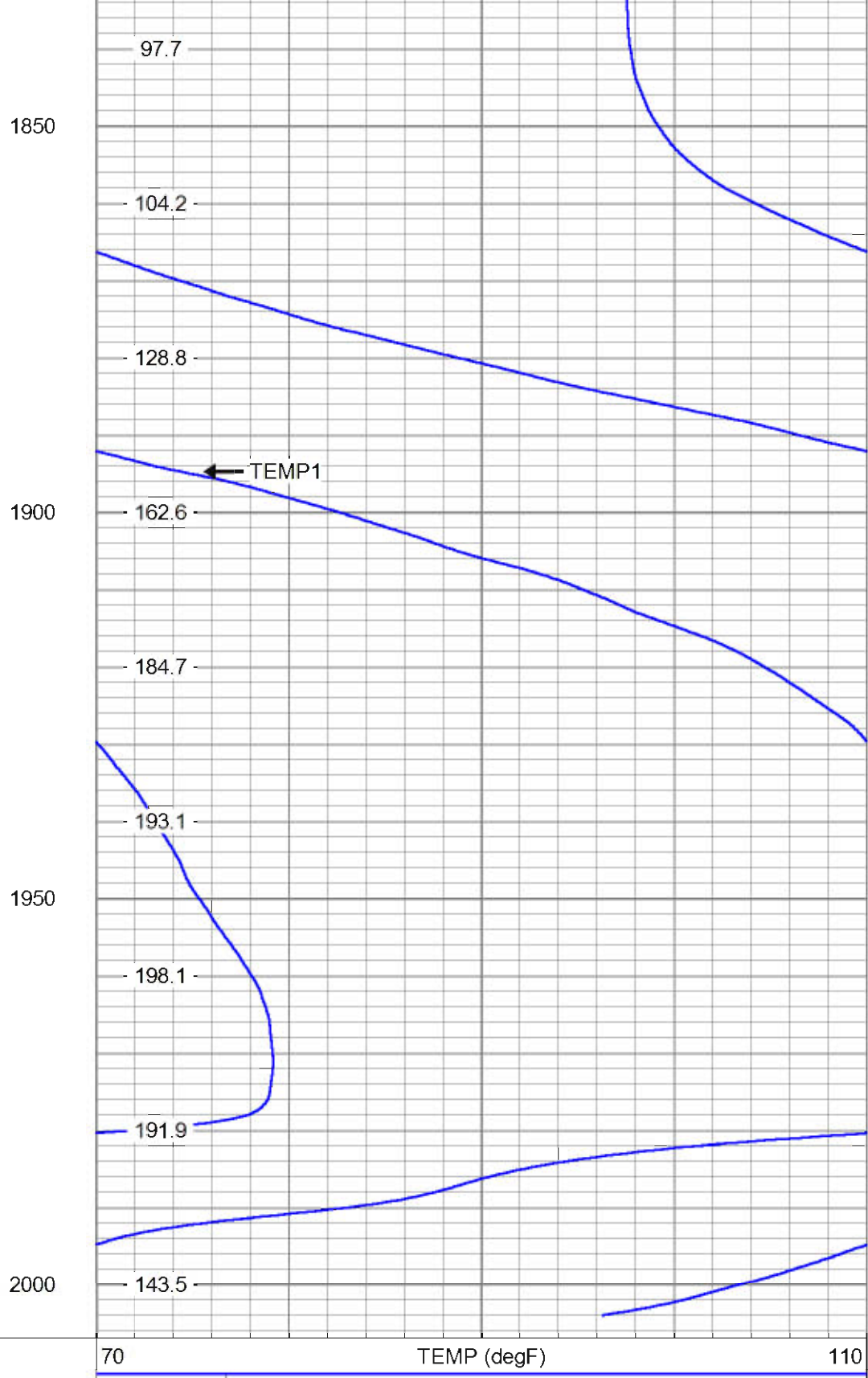
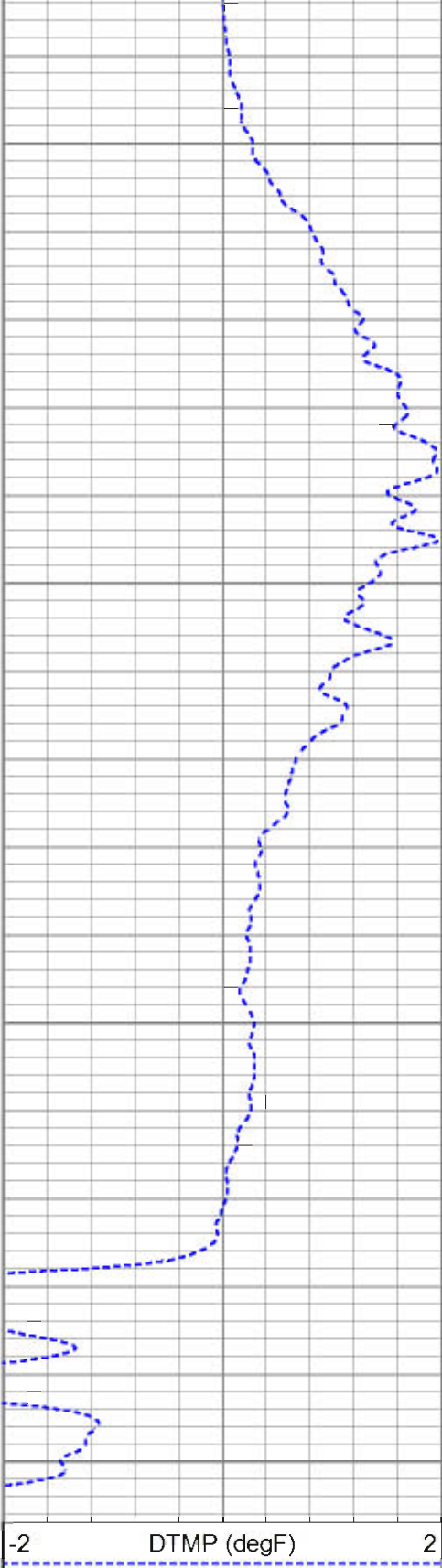
DZMW – Geophysical Logs

STAGE 1

Database File: leelfmw1.db
 Dataset Pathname: run9/TEMP1
 Presentation Format: temp
 Dataset Creation: Fri Jun 03 04:31:39 2011 by Log Open-Cased 100827
 Charted by: Depth in Feet scaled 1:240

-2	DTMP (degF)	2	70	TEMP (degF)	110
			TEMP (degF)		





TEMP
(degF)



YOUNGQUIST BROTHERS, Inc
GEOPHYSICAL LOGGING DIVISION

**(6" CASING)
CEMENT TOP
TEMPERATURE
LOG**

Company LEE COUNTY REGIONAL SWDF
Well DZMW-1
Field SOLID WASTE DISPOSAL FACILITY
County HENDRY
State FL

Company LEE COUNTY REGIONAL SWDF
Well DZMW-1
Field SOLID WASTE DISPOSAL FACILITY
County HENDRY State FL

Location: API #:

Other Services
SEE
COMMENTS

SEC TWP RGE

Elevation

Elevation

Permanent Datum
Log Measured From
Drilling Measured From

03-JUNE-2011

NINE

2015'

2000'

2000'

CASING

NA

WATER

NA

156.4 degF

NA

0330

0400

104

FT MYERS

MARTINEZ

TUBBERT

Borehole Record

Borehole Record

Run Number	Bit	From	To	Run Number	Bit	From	To
ONE	42.5"	SURFACE	205'	FIVE	22"	CASING	1815'
TWO	12.25"	CASING	1161'				
THREE	32.5"	CASING	1140'				
FOUR	12.25"	CASING	2080'				
Casing Record		Size	Wgt/Ft	Top		Bottom	
Surface String		34"	.375" W.T.	SURFACE		200'	
Prot. String		24"	.375" W.T.	SURFACE		1135'	
Production String		16"	.375" W.T.	SURFACE		1813'	
Liner		6"	.340" W.T.	SURFACE		2015'	

<<< 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

STAGE 1 LOGGED @ 0400 ON 06/03/2011
STAGE 2 LOGGED @ 1400 ON 06/03/2011



YOUNGQUIST BROTHERS, Inc

MERGED CTL

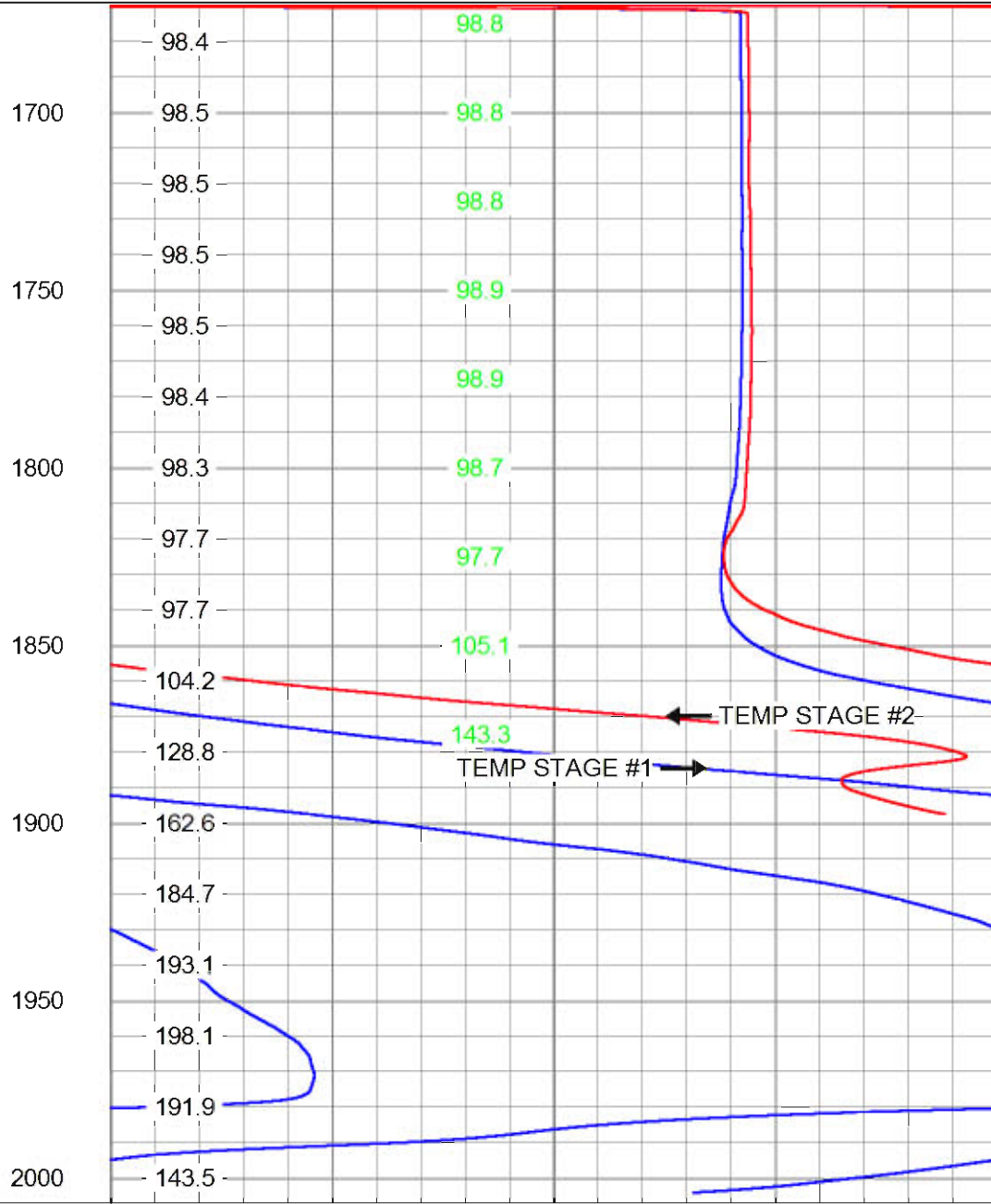
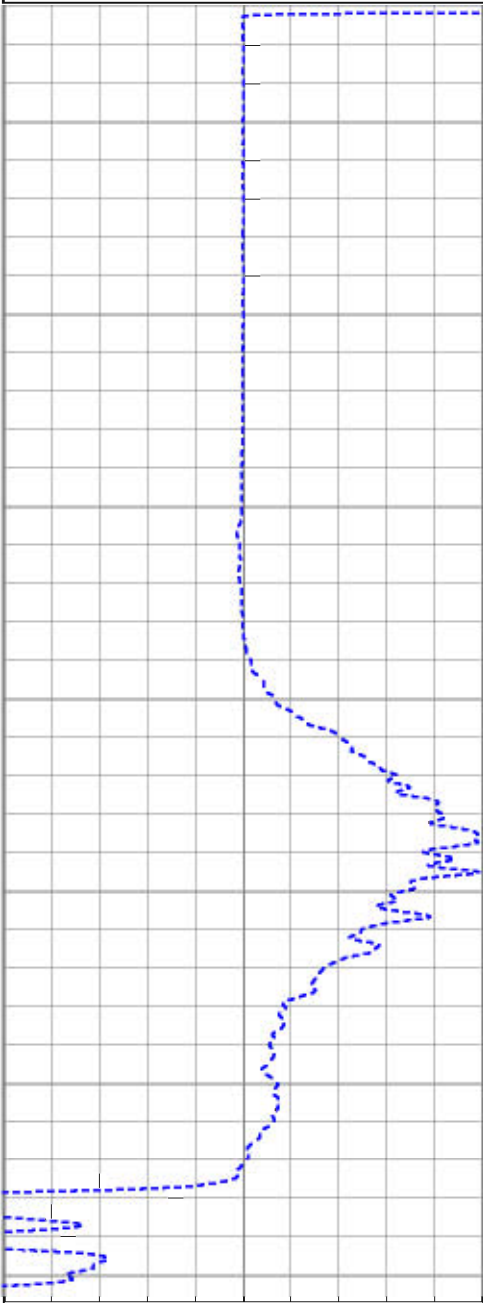
Database File: leelfmw1.db
 Dataset Pathname: run9/TEMP1
 Presentation Format: temp
 Dataset Creation: Fri Jun 03 04:31:39 2011 by Log Open-Cased 100827
 Charted by: Depth in Feet scaled 1:600

-2 DTMP (degF) 2

70 TEMP STAGE #1 (degF) 110

70 TEMP STAGE #2 (degF) 110

TEMP (degF)	TEMP2 (degF)
-------------	--------------



-2 DTMP (degF) 2

70 TEMP STAGE #1 (degF) 110

70 TEMP STAGE #2 (degF) 110

TEMP (degF)	TEMP2 (degF)
-------------	--------------

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)

TEMP	0.25		TEMP-MLS (16)	2.45	1.63	30.00
------	------	--	---------------	------	------	-------

Dataset: leelfmw1.db: field/well/run9/TEMP1
 Total Length: 2.45 ft
 Total Weight: 30.00 lb
 O.D.: 1.63 in

Calibration Report

Database File: leelfmw1.db
 Dataset Pathname: run9/TEMP1
 Dataset Creation: Fri Jun 03 04:31:39 2011 by Log Open-Cased 100827

Temperature Calibration Report

Serial Number: 16
 Tool Model: MLS
 Performed: Wed Mar 23 11:36:19 2011

Point #	Reading		Reference	
1	301.05	cps	32.00	degF
2	765.02	cps	79.00	degF
3	2097.88	cps	212.00	degF
4		cps		degF
5		cps		degF
6		cps		degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF