

# GAMMA RAY/CCL TEMPERATURE

Company: REPUBLIC SERVICES  
 Well: EDS 2-12  
 Field: ROMULUS STORAGE  
 County: WAYNE  
 State: MICHIGAN

Location: API  
 SW NW SE  
 1670' FSL & 2372' FEL  
 OF 1/4 SEC.  
 SEC 12 TWP RGE 09E

Permanent Datum: GROUND LEVEL  
 Elevation: 626'

Log Measured From: KELLY BUSHING  
 Drilling Measured From: KELLY BUSHING  
 Date: 09/30/2020

Run Number	ONE
Depth Driller	4450'
Depth Logger	4450'
Bottom Logged Interval	4450'
Top Log Interval	SURFACE
Open Hole Size	N/A
Type Fluid	WATER
Density / Viscosity	N/A
Max. Recorded Temp.	89.1 DegF
Estimated Cement Top	N/A
Time Well Ready	7:00 A.M
Time Logger on Bottom	10:00 A.M
Equipment Number	#117
Location	MT. PLEASANT
Recorded By	J. PIFER
Witnessed By	GABE HOLMES

Tubing Liner Record		Casing Record	
SIZE	Weight	From	To
4 1/2"	F.G	SURFACE	3934'

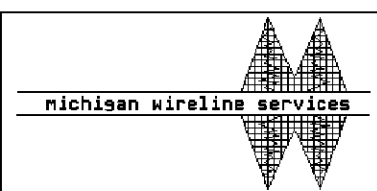
<<< Fold Here >>>

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

THIS LOG IS CORRELATED TO MWL  
 GAMMA RAY LOG DATED 09/24/2020.

FIRST RUN AFTER REPLACING OF TUBING.

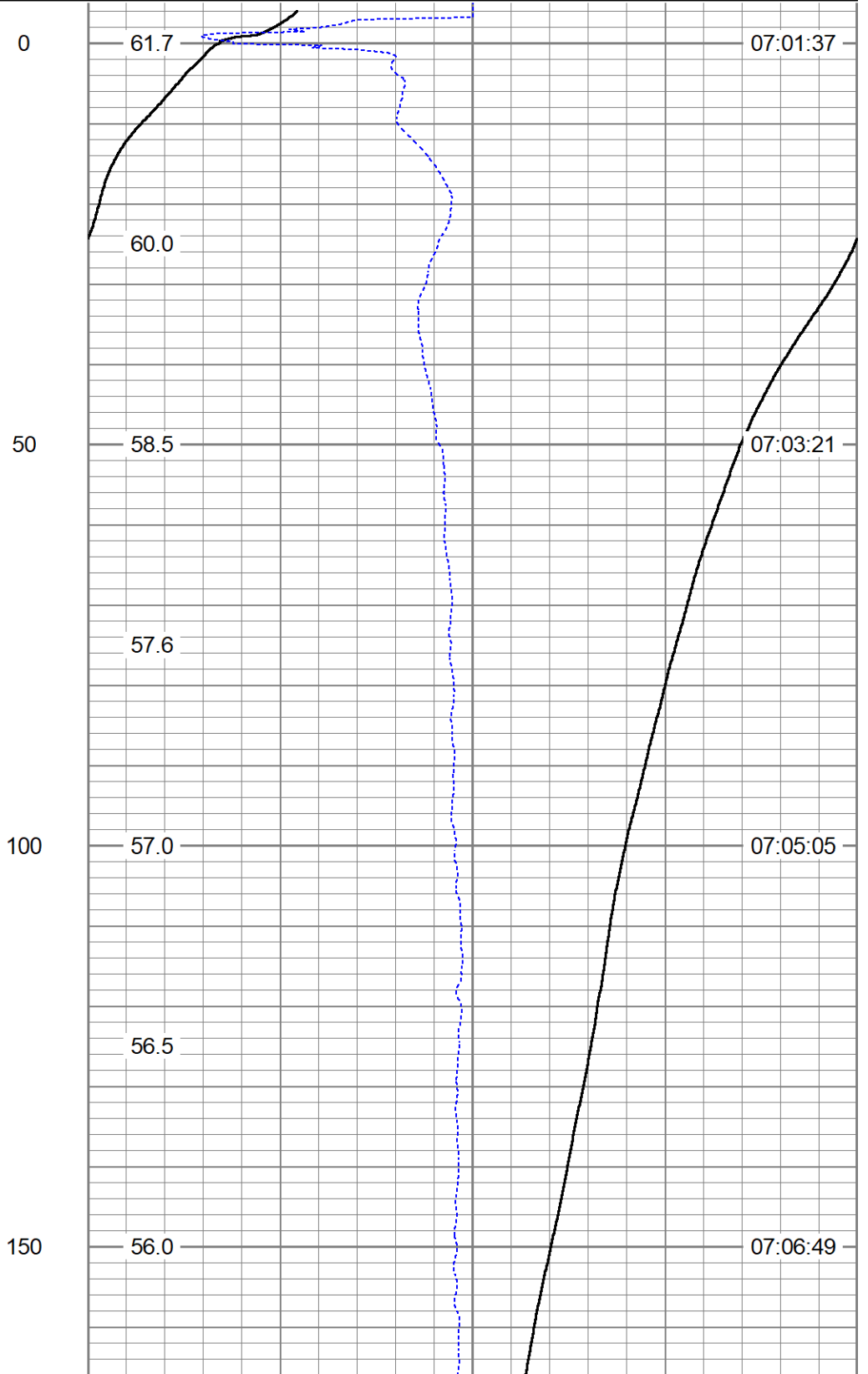
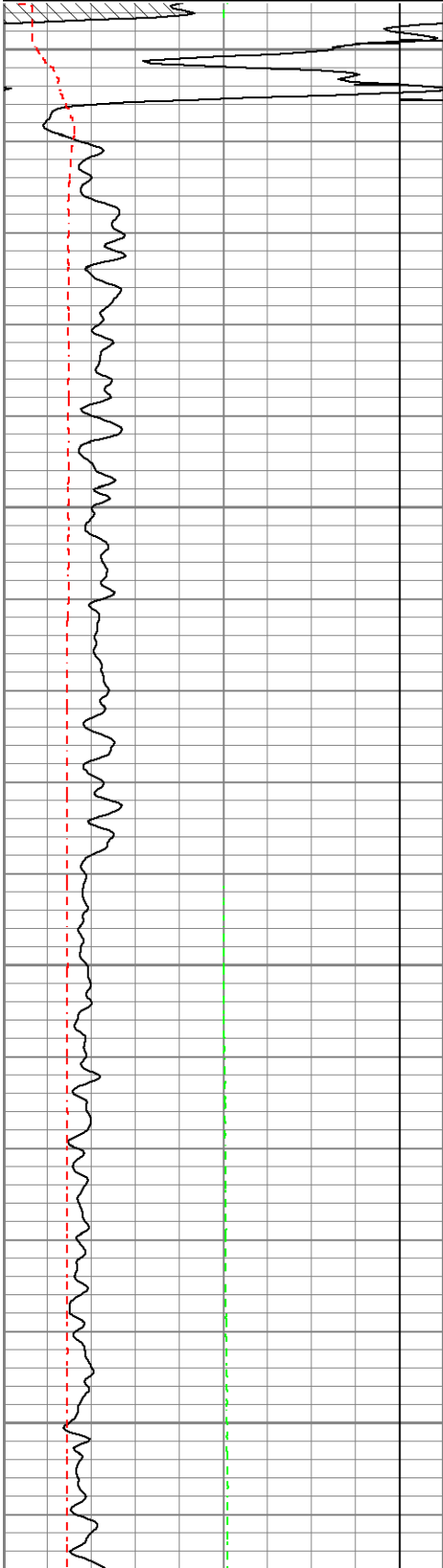


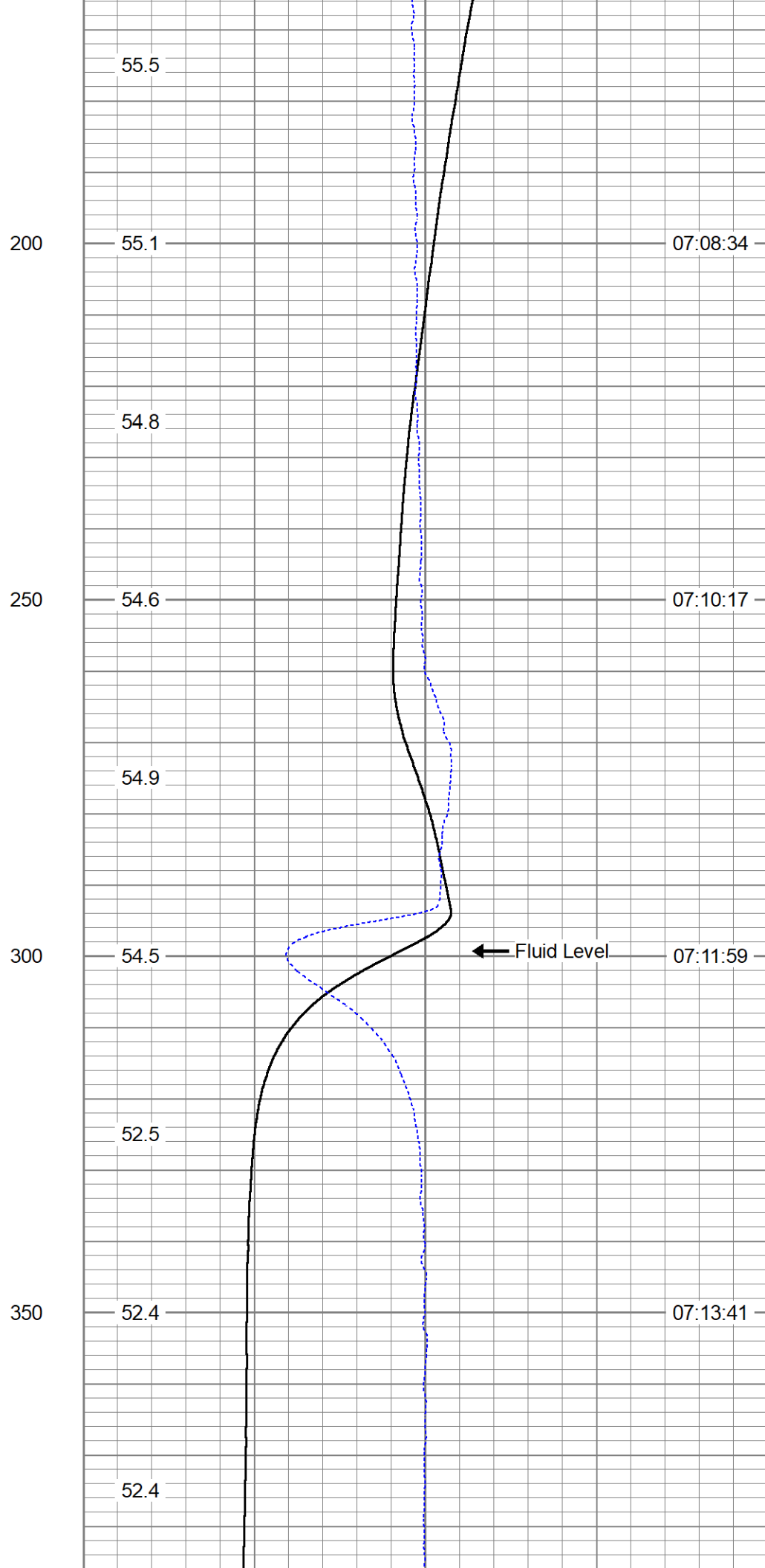
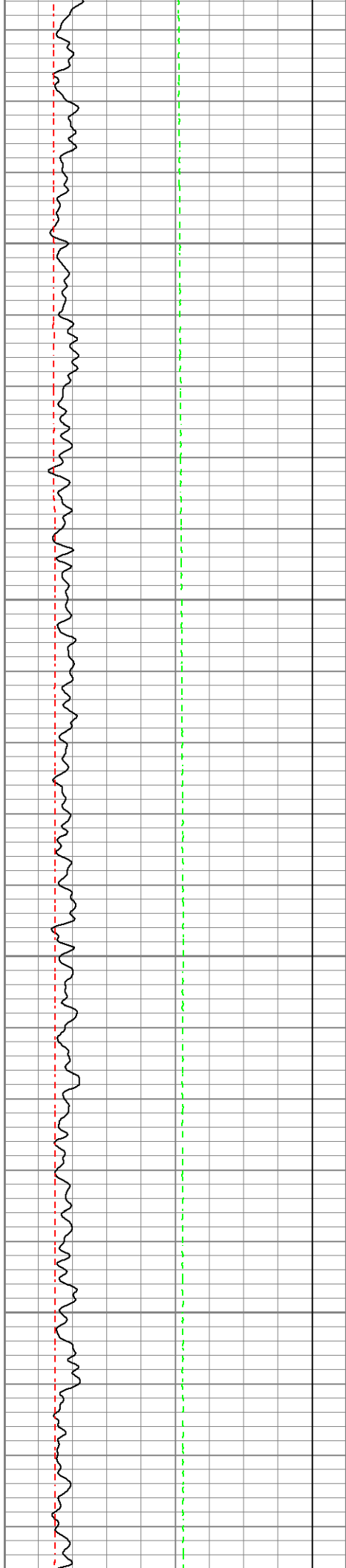
MAIN PASS  
 5 INCH / 100 FEET

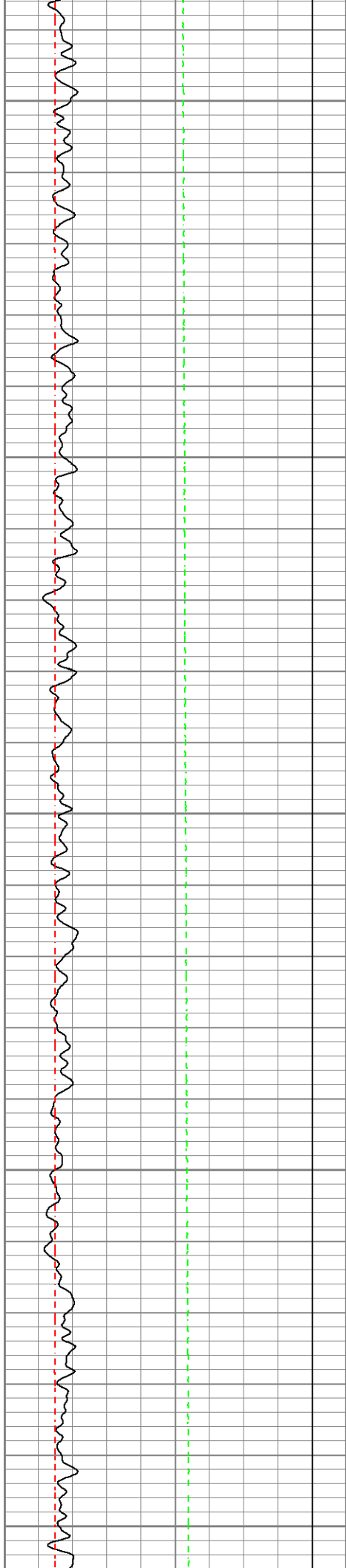
Database File 212temp.db  
 Dataset Pathname TEMP  
 Presentation Format temp  
 Dataset Creation Wed Sep 30 07:01:09 2020  
 Charted by Depth in Feet scaled 1:240

0	GR (GAPI)	150
150	GR (GAPI)	300
300	GR (GAPI)	450
9	CCL	-1
LSPD	0	LTEN (lb) 500
0 (ft/min)	100	

0	TEMP (degF)	10
-0.5	DTMP (degF)	0.5
TEMP		TOD (sec)
(degF)		







400

52.3

07:15:23

52.2

450

52.3

07:17:05

52.3

500

52.4

07:18:47

52.5

550

52.5

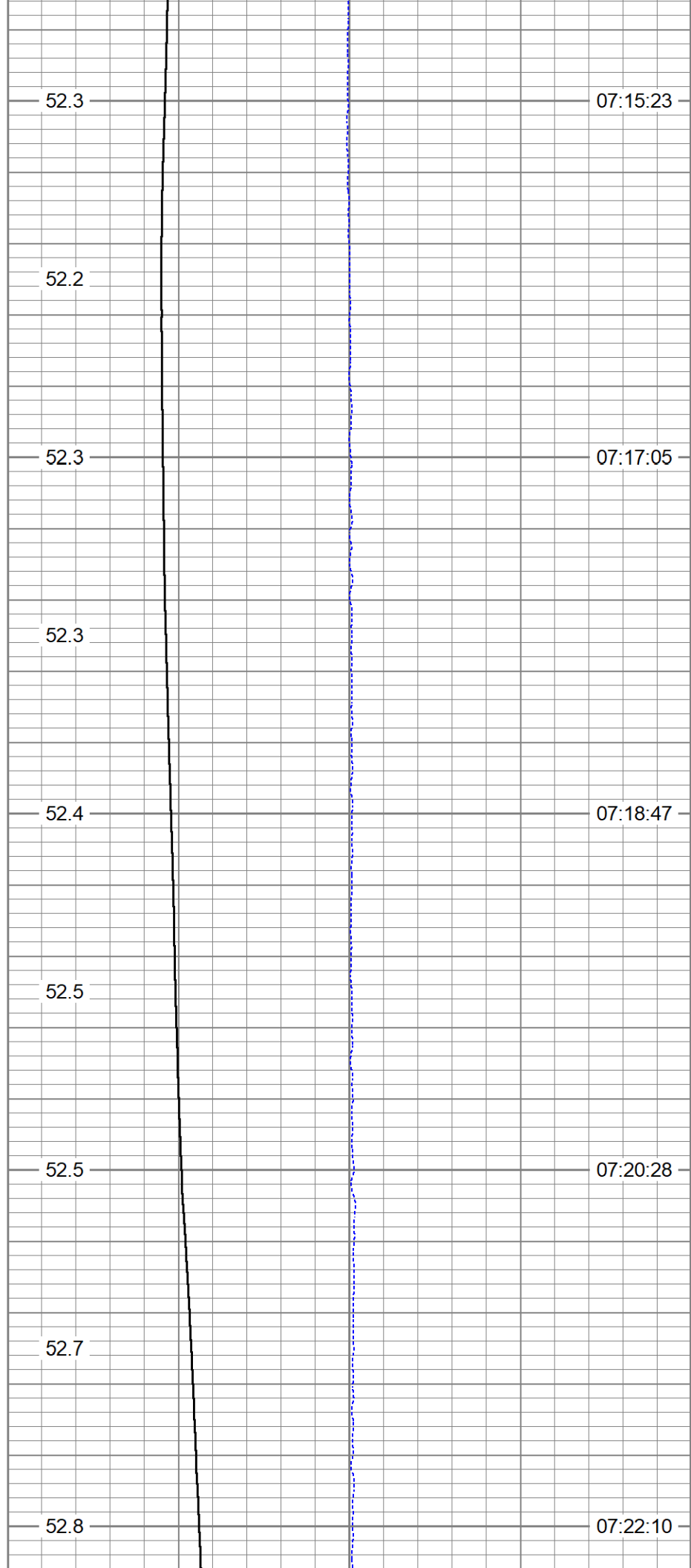
07:20:28

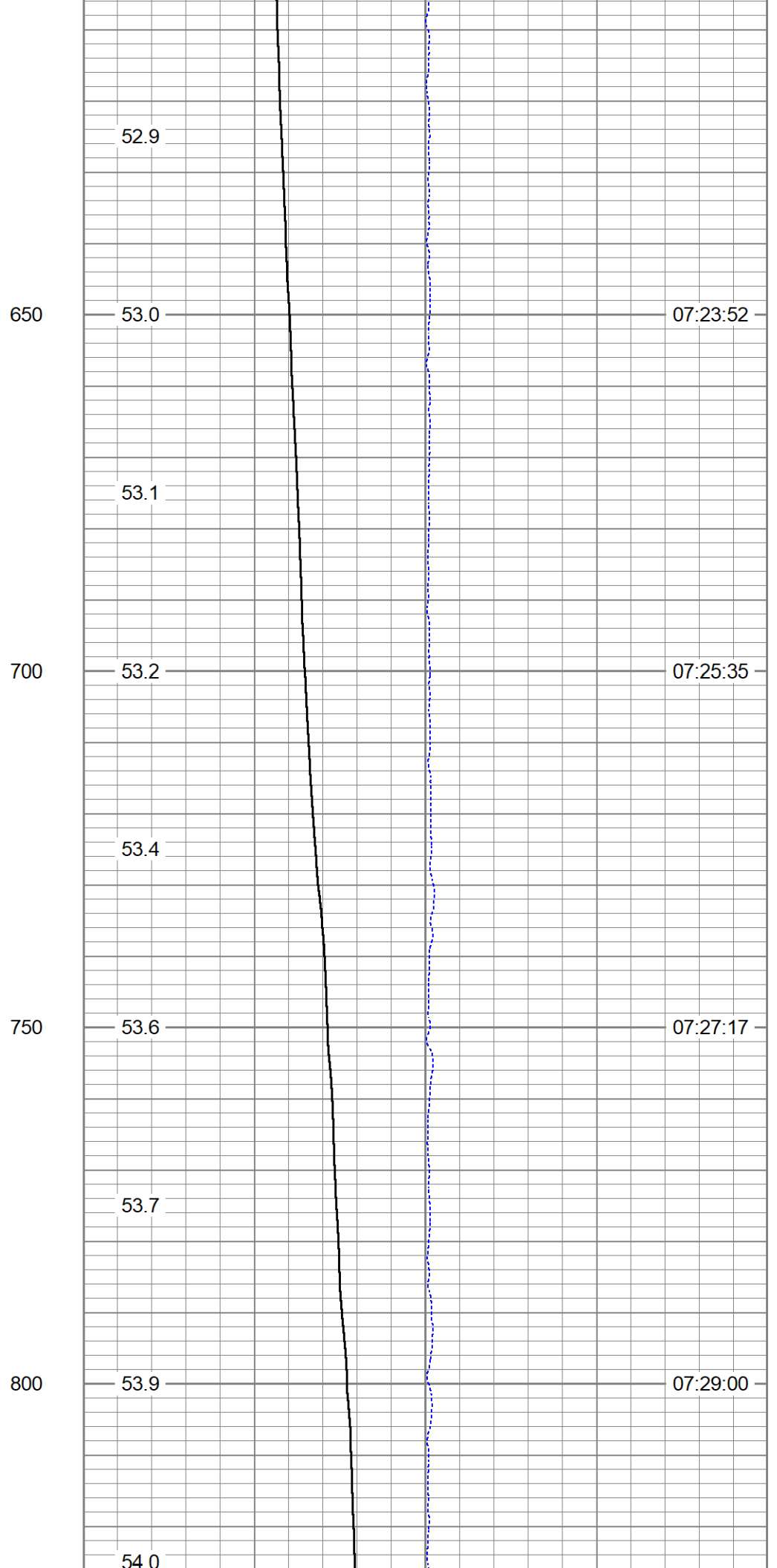
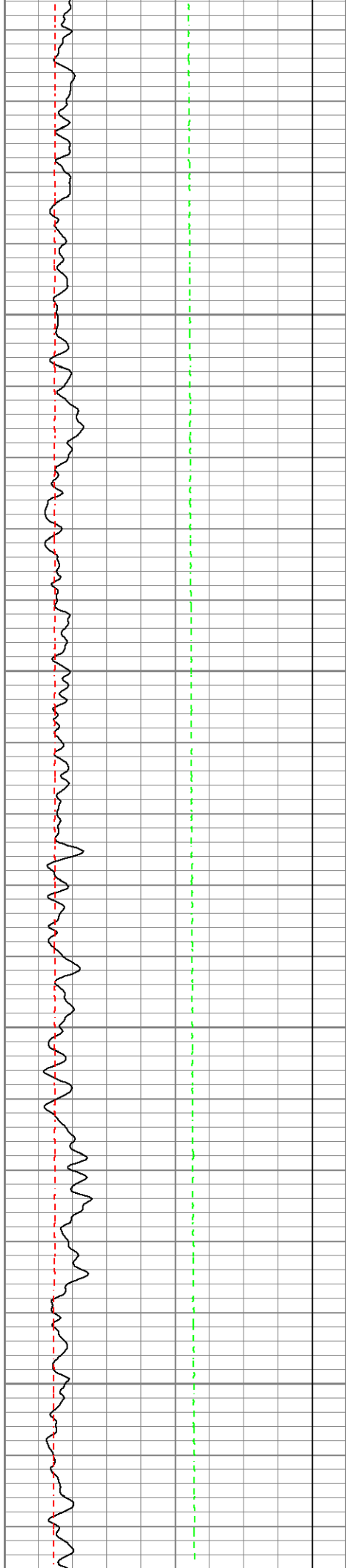
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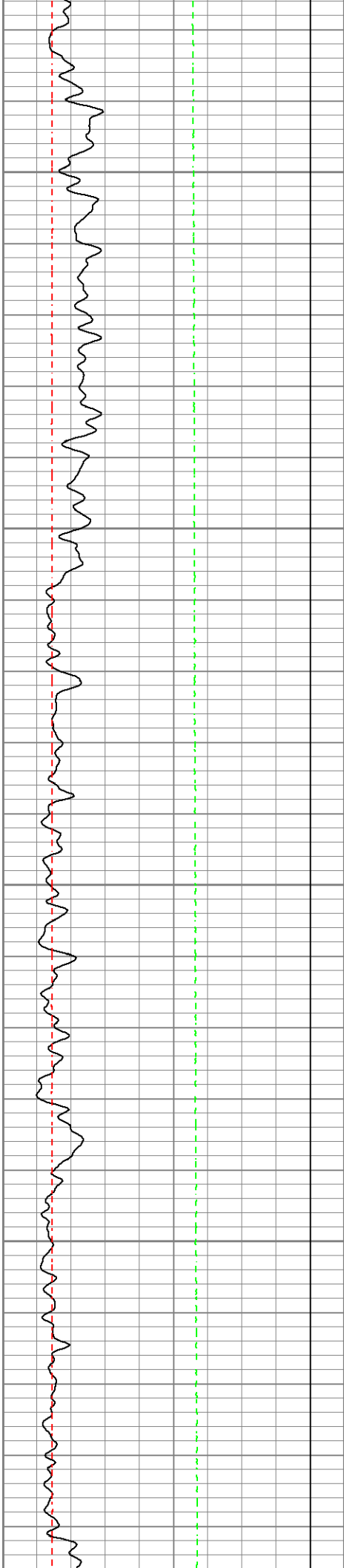
600

52.8

07:22:10







850

54.2

07:30:45

54.4

900

54.5

07:32:29

54.6

950

54.7

07:34:14

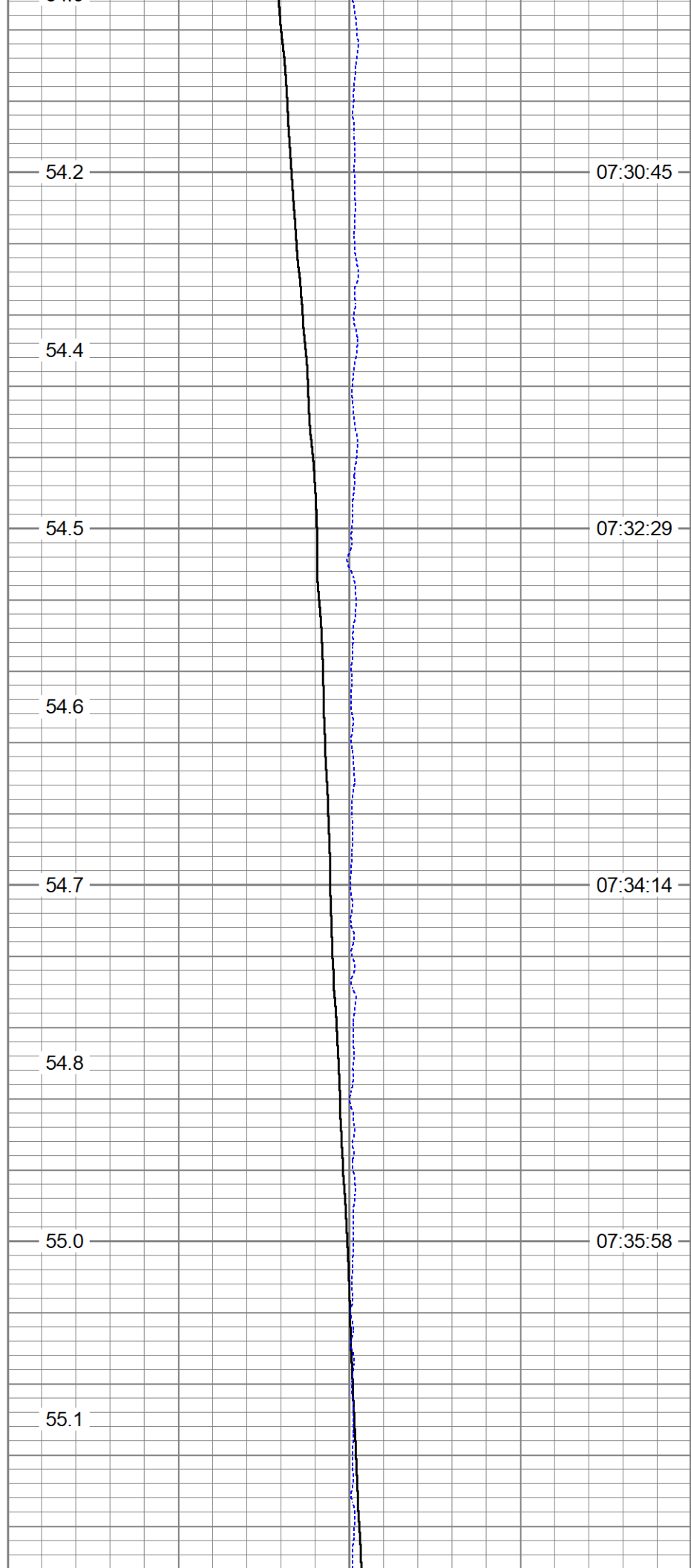
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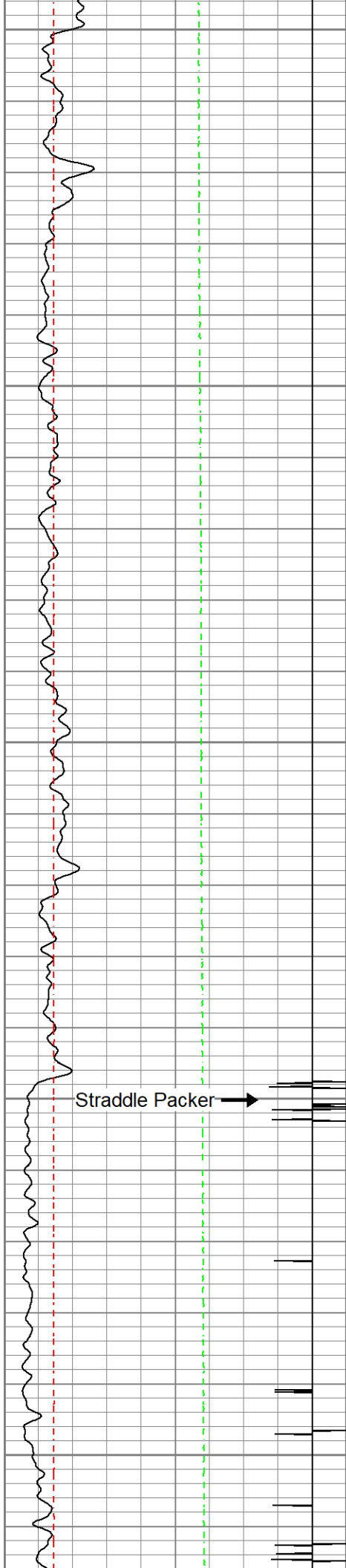
1000

55.0

07:35:58

55.1





1050

55.2

07:37:43

55.3

1100

55.4

07:39:27

55.5

1150

55.7

07:41:12

55.8

1200

55.9

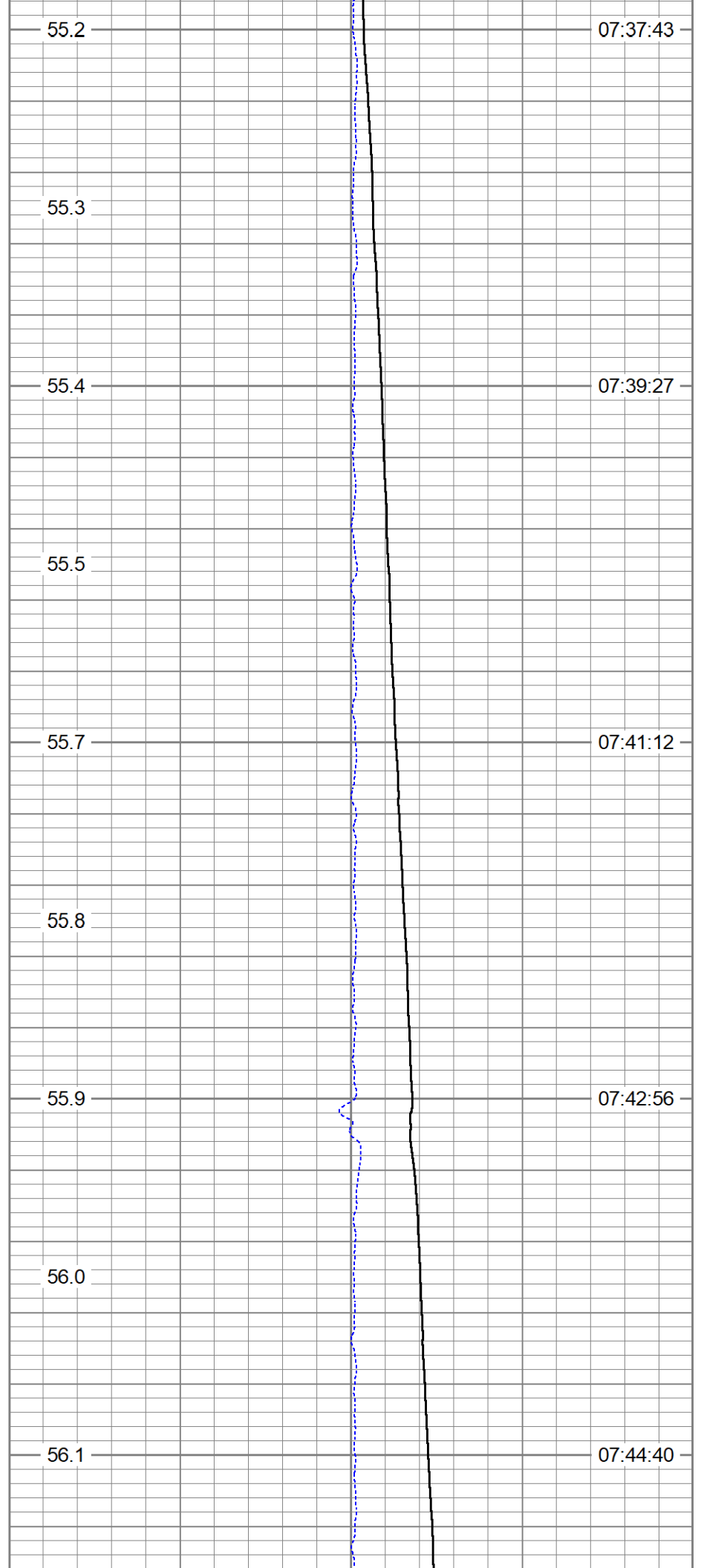
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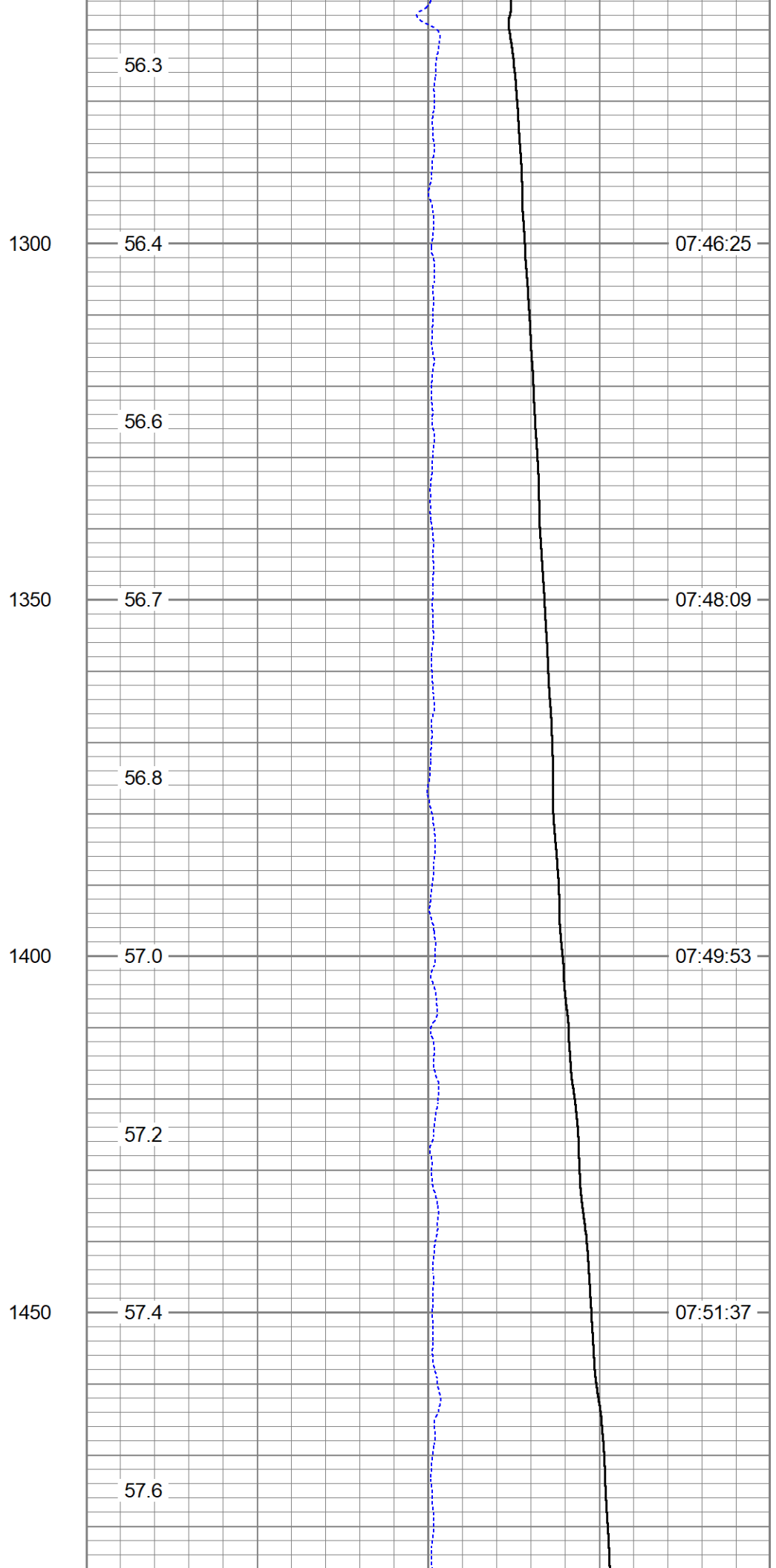
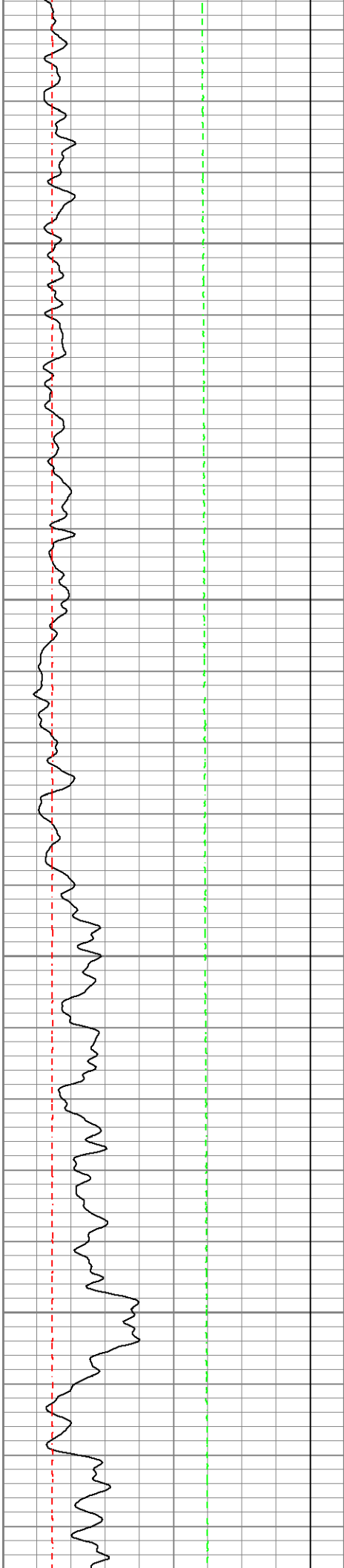
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1250

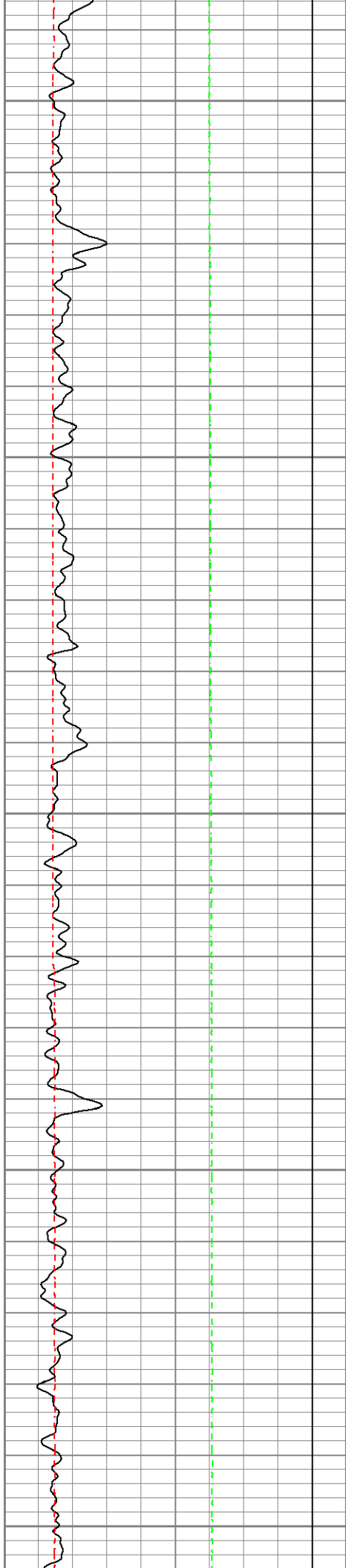
56.1

07:44:40









1500

57.8

07:53:22

57.9

1550

58.0

07:55:08

58.1

1600

58.2

07:56:54

58.3

1650

58.5

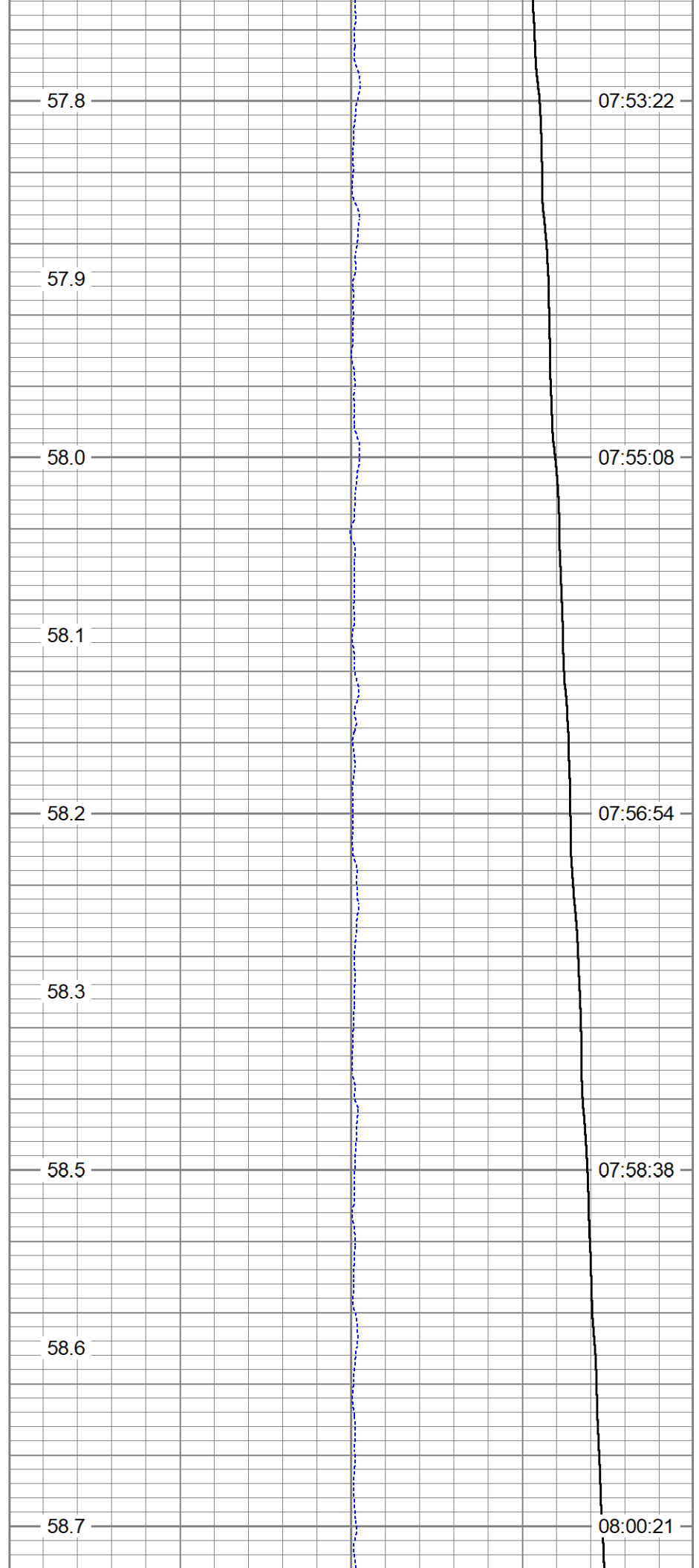
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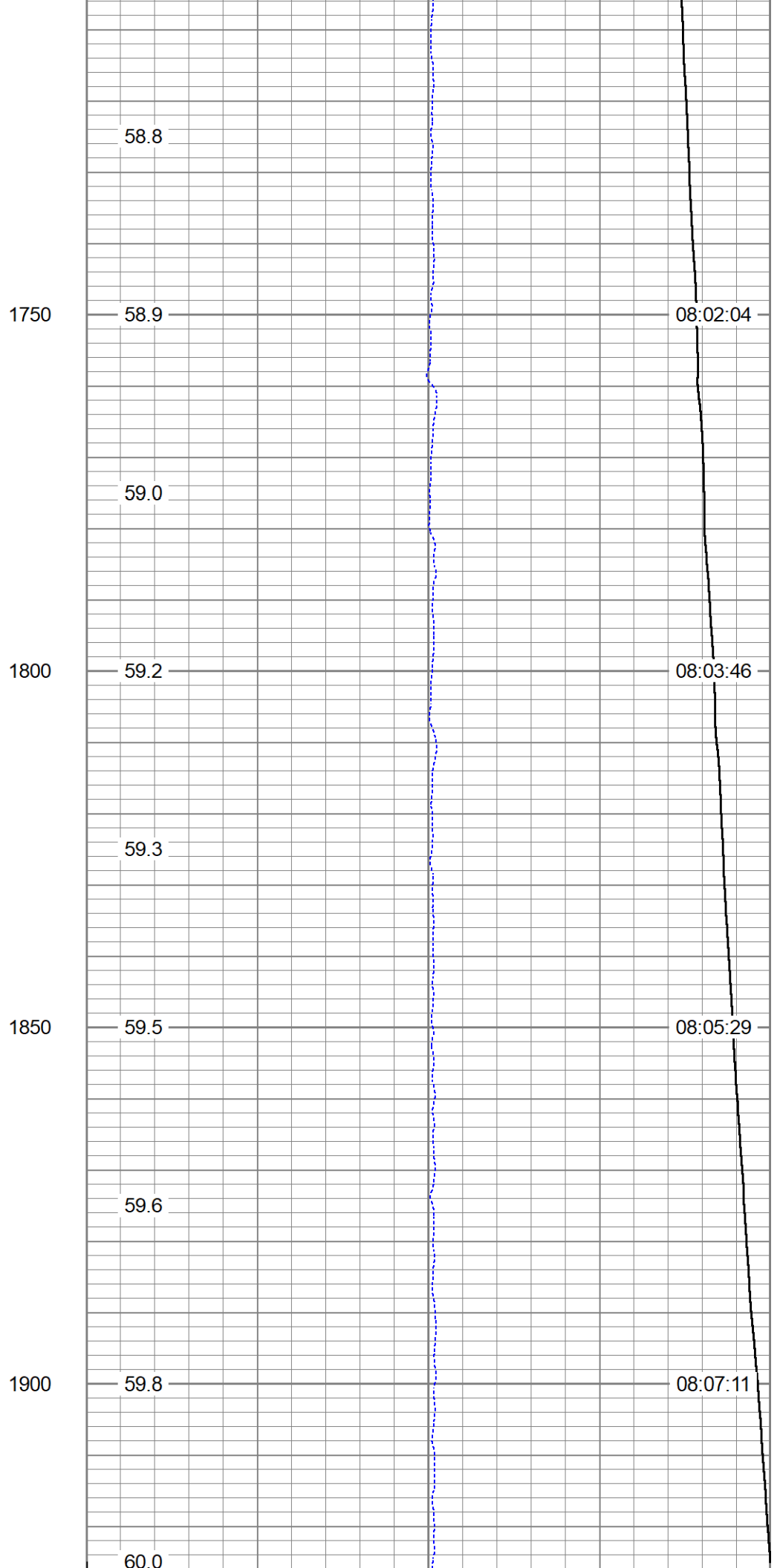
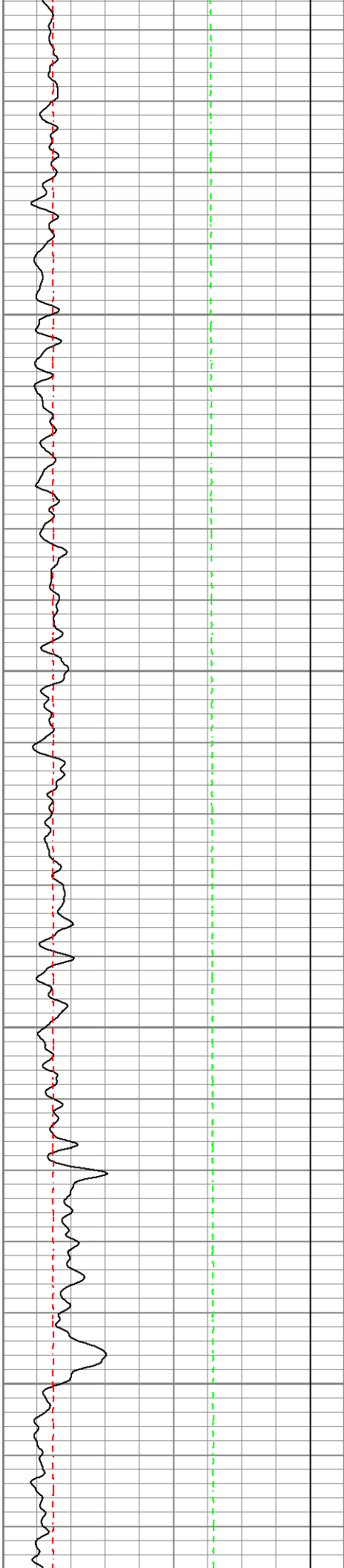
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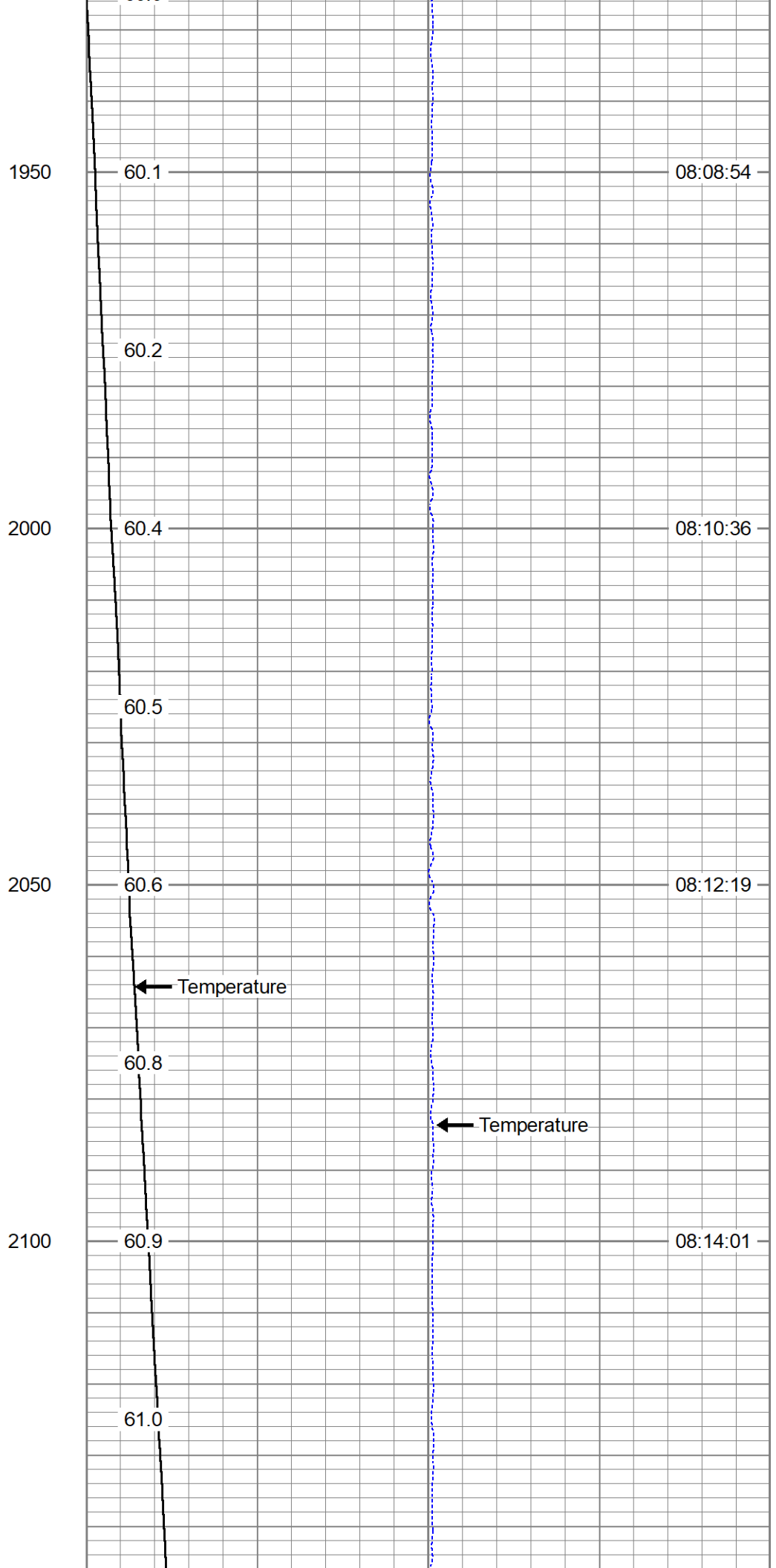
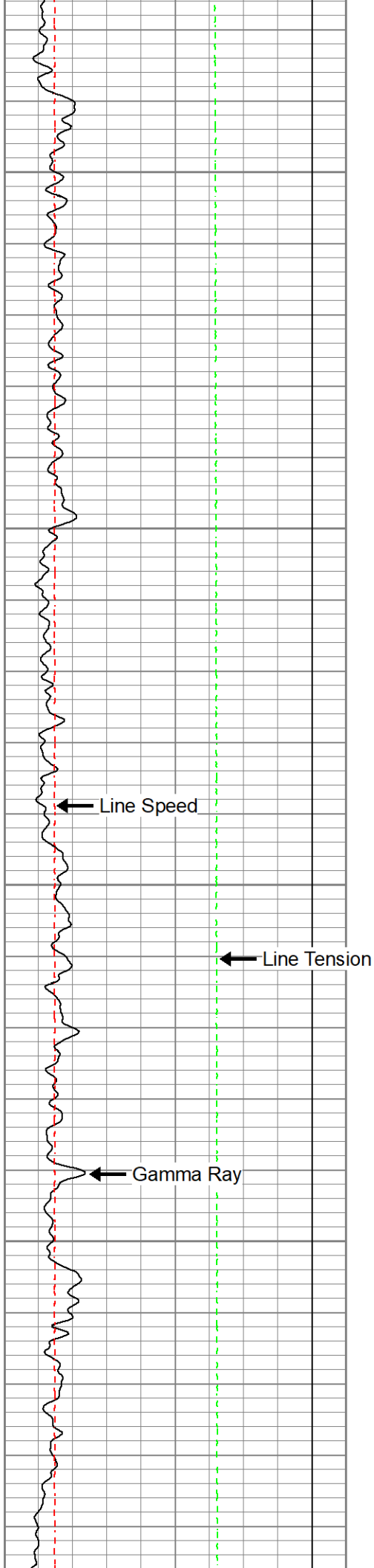
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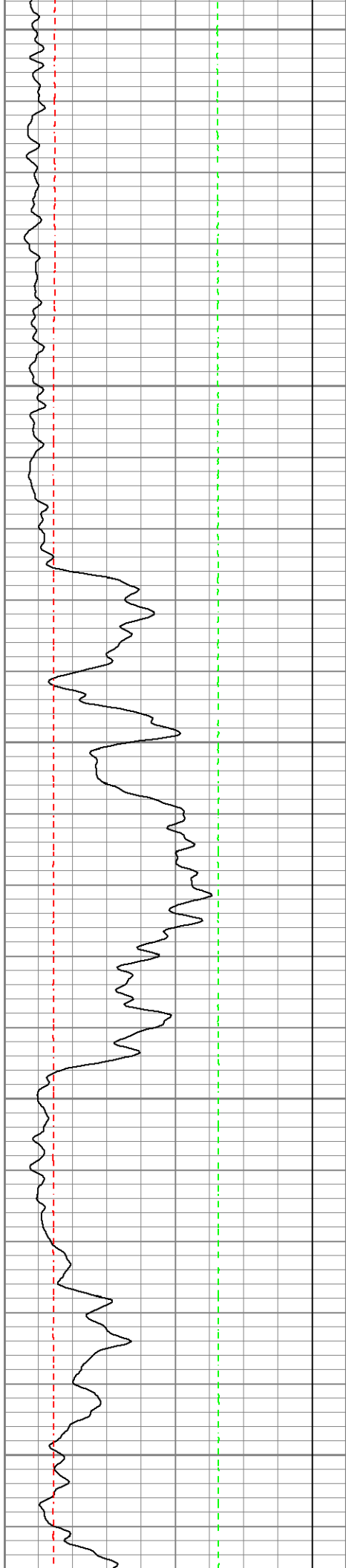
58.7

08:00:21









2150

2200

2250

2300

2350

61.2

61.3

61.6

61.7

61.9

62.2

62.5

62.8

63.0

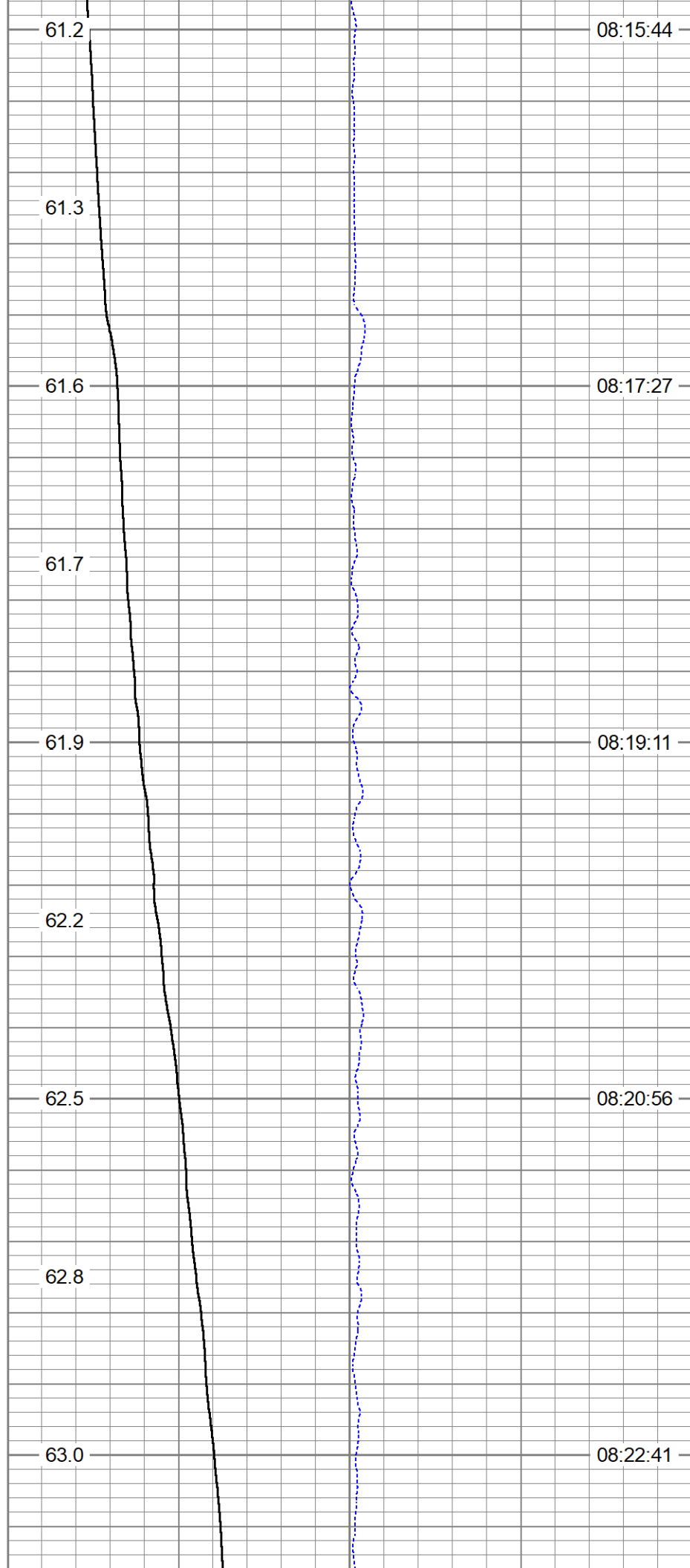
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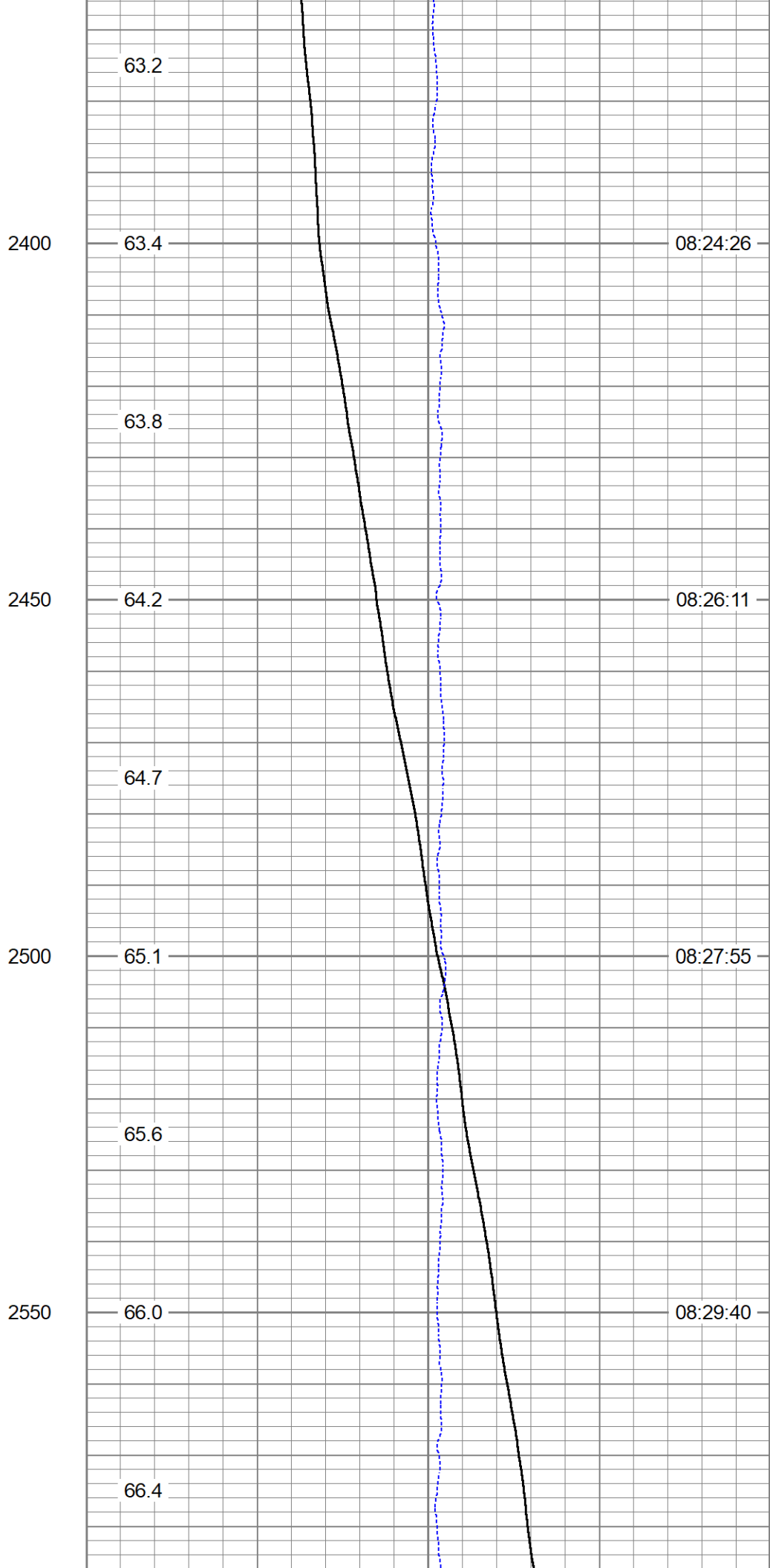
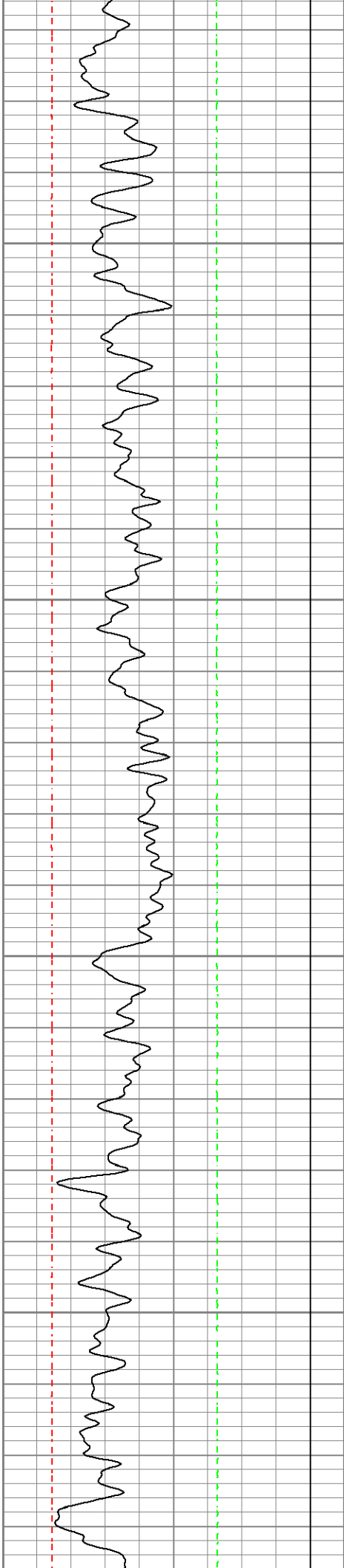
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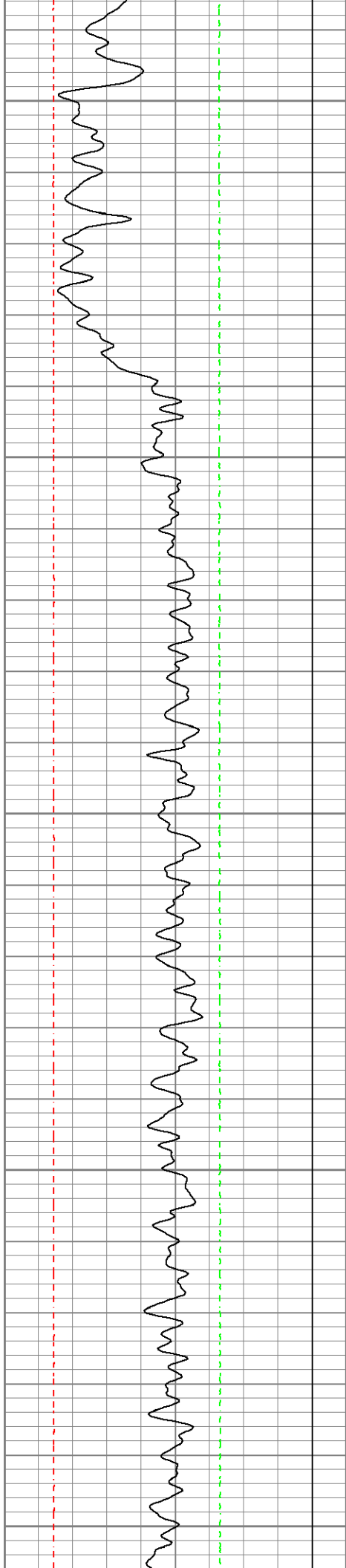
08:19:11

08:20:56

08:22:41







2600

66.8

08:31:24

67.1

2650

67.4

08:33:09

67.8

2700

68.3

08:34:53

68.9

2750

69.5

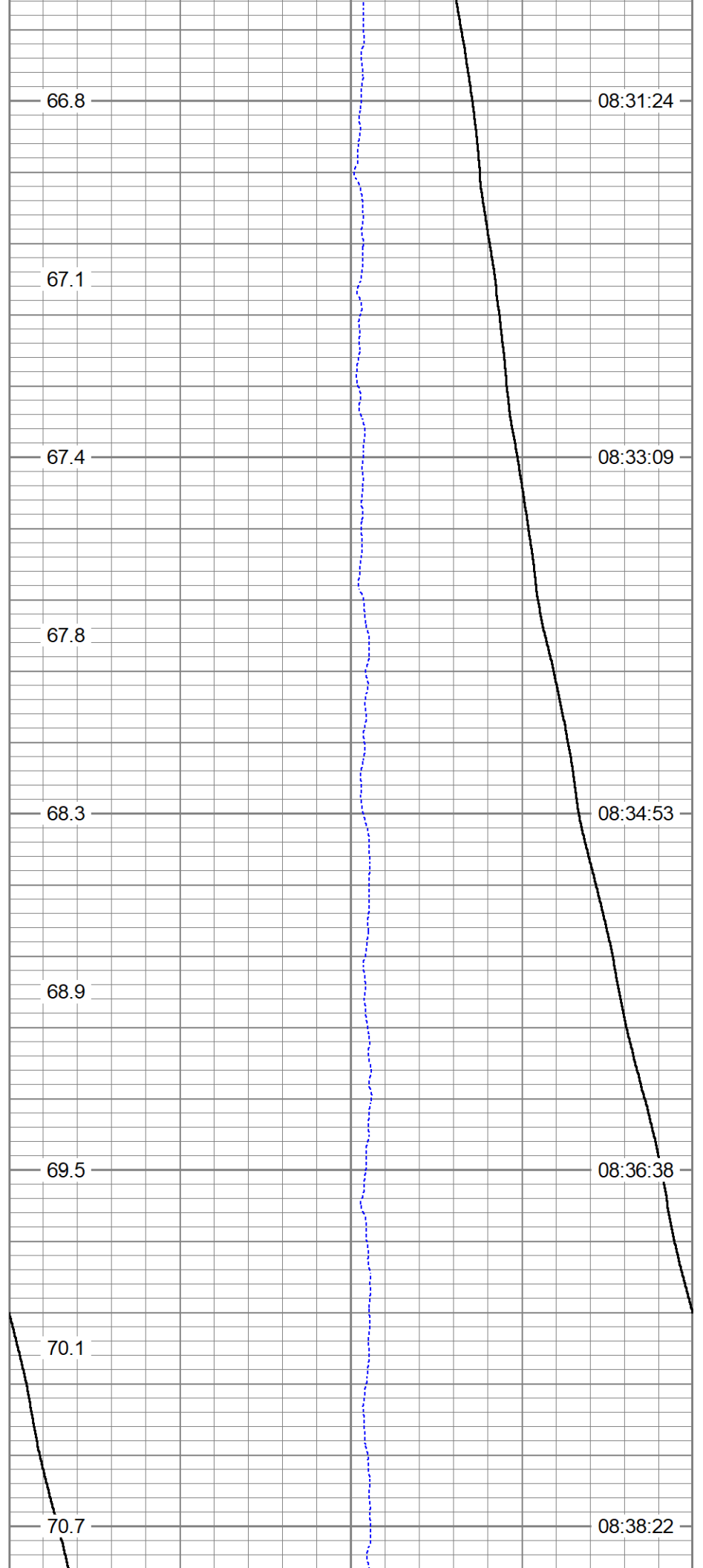
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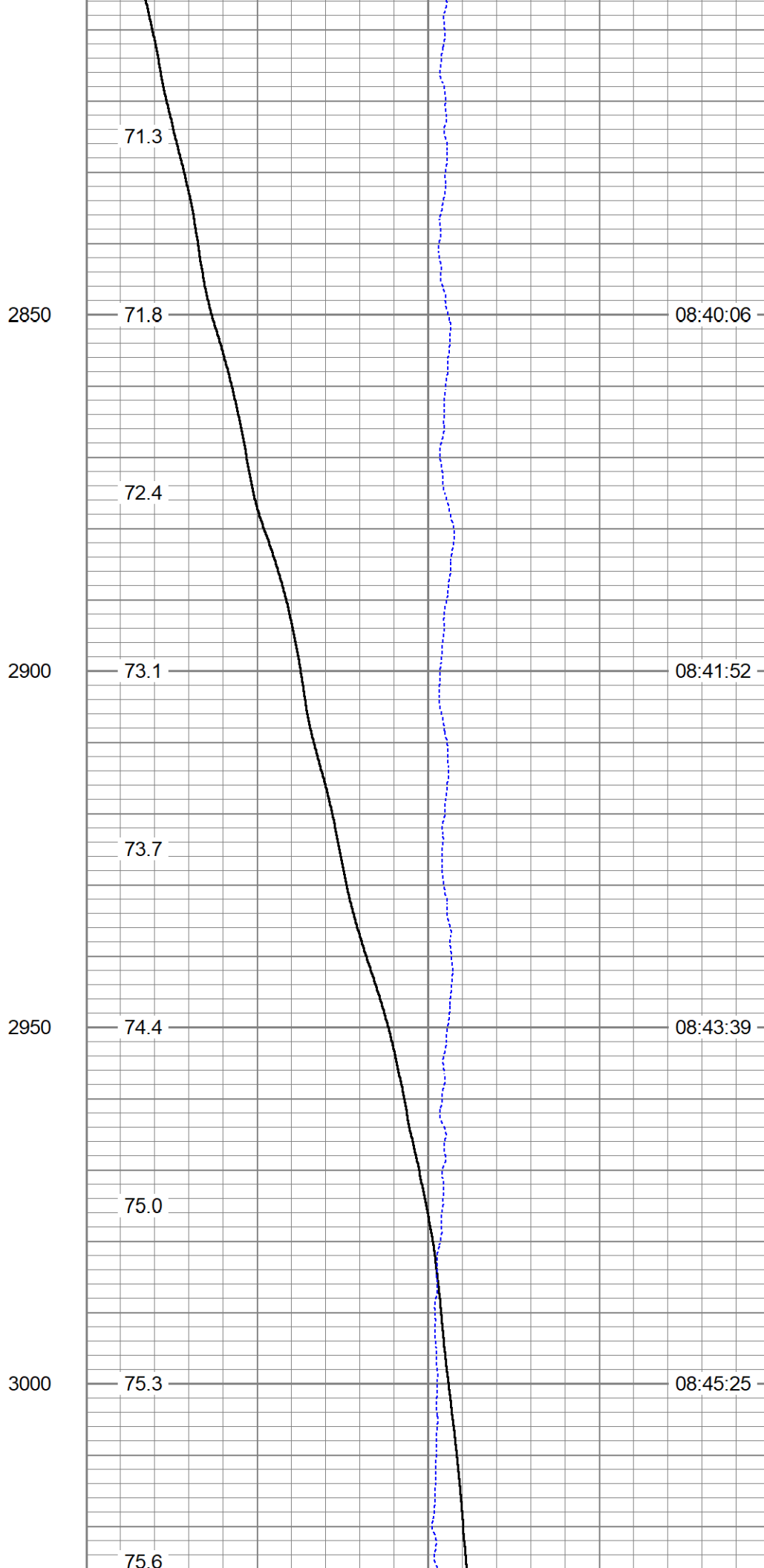
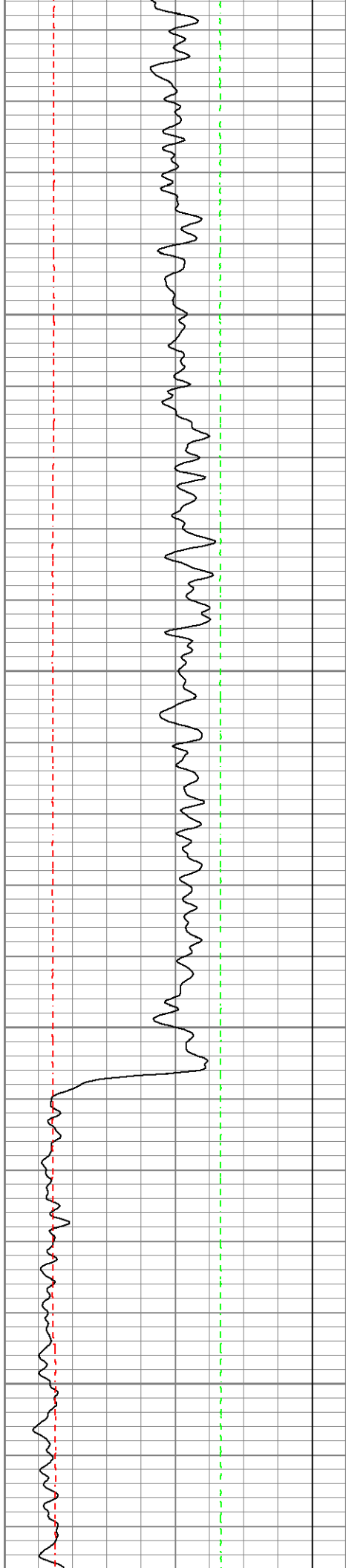
70.1

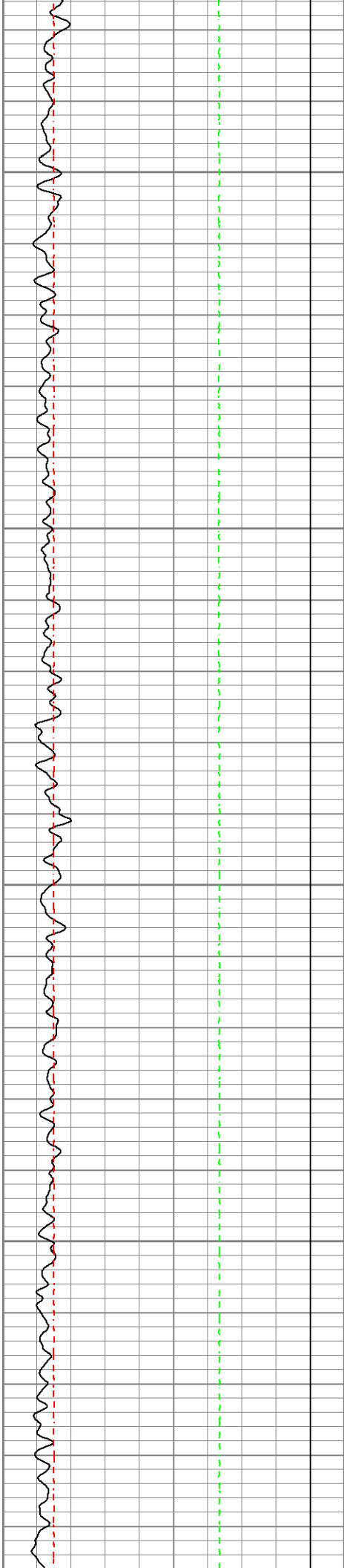
2800

70.7

08:38:22







3050

75.8

08:47:06

76.1

3100

76.4

08:48:47

76.6

3150

76.8

08:50:28

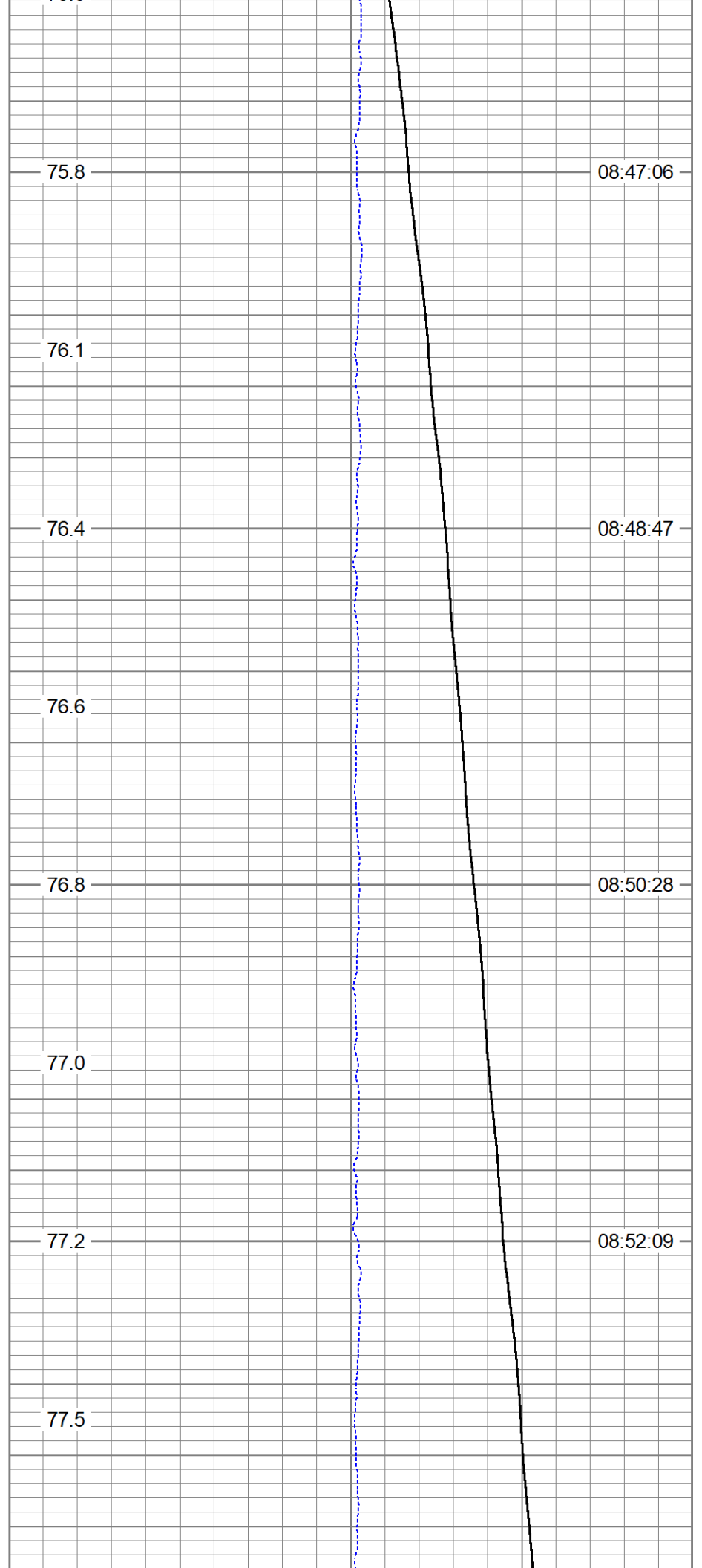
77.0

3200

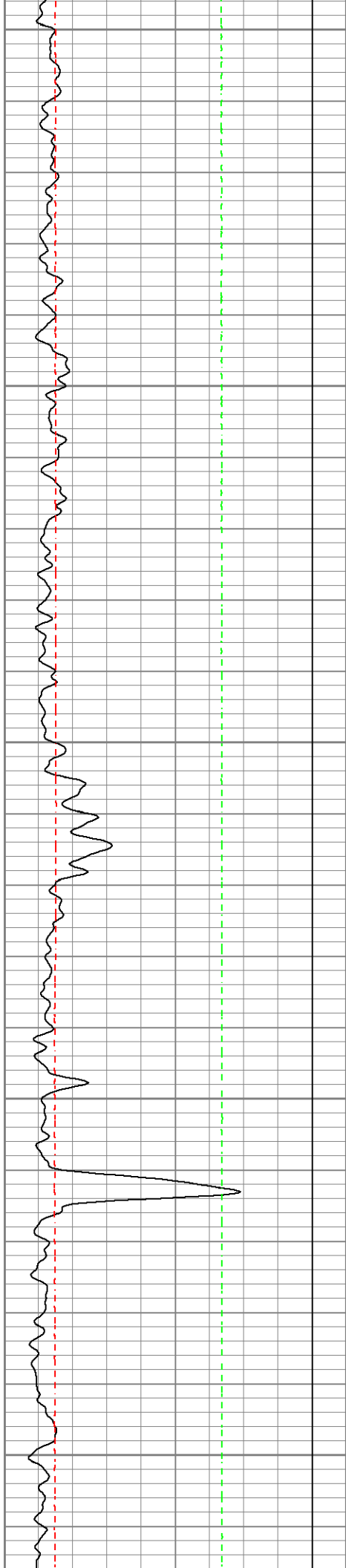
77.2

08:52:09

77.5







3250

77.7

08:53:50

77.9

3300

78.2

08:55:30

78.4

3350

78.6

08:57:10

78.9

3400

79.2

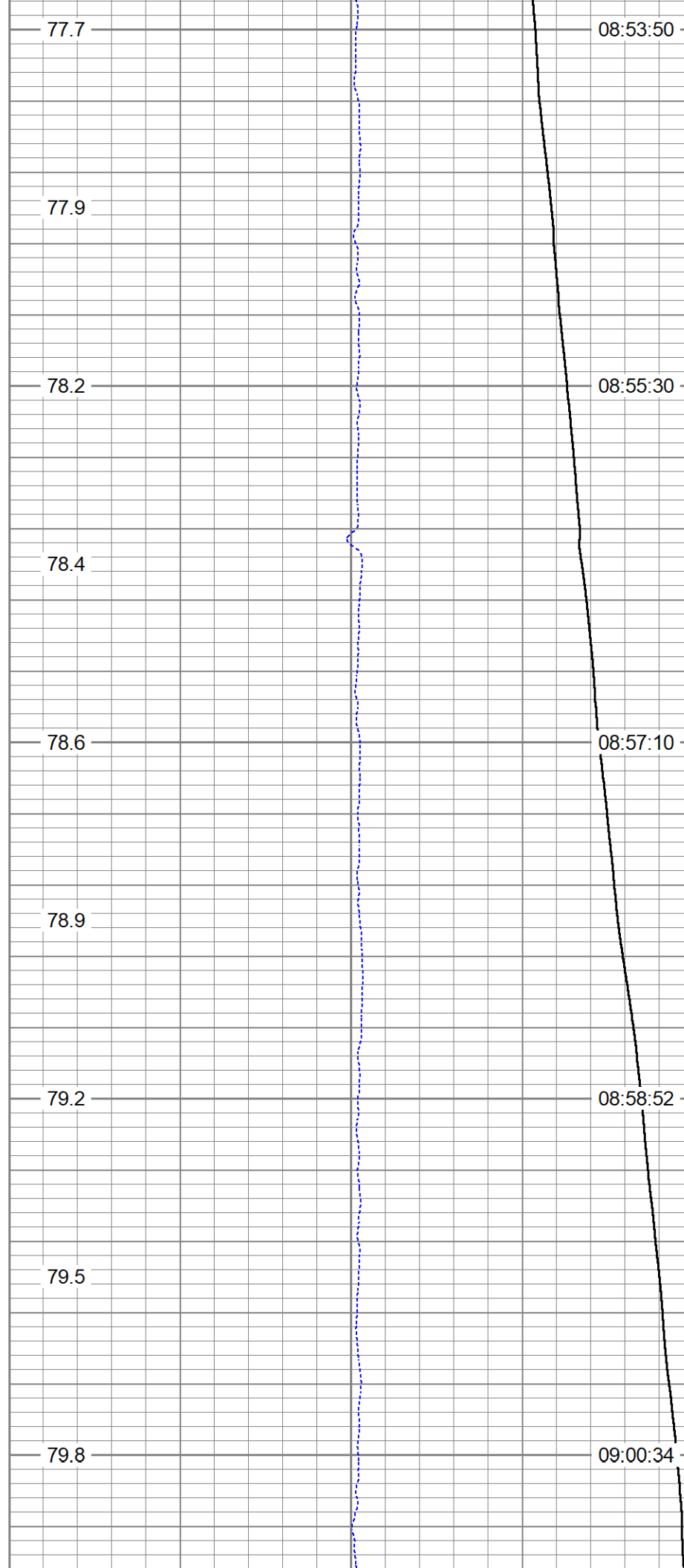
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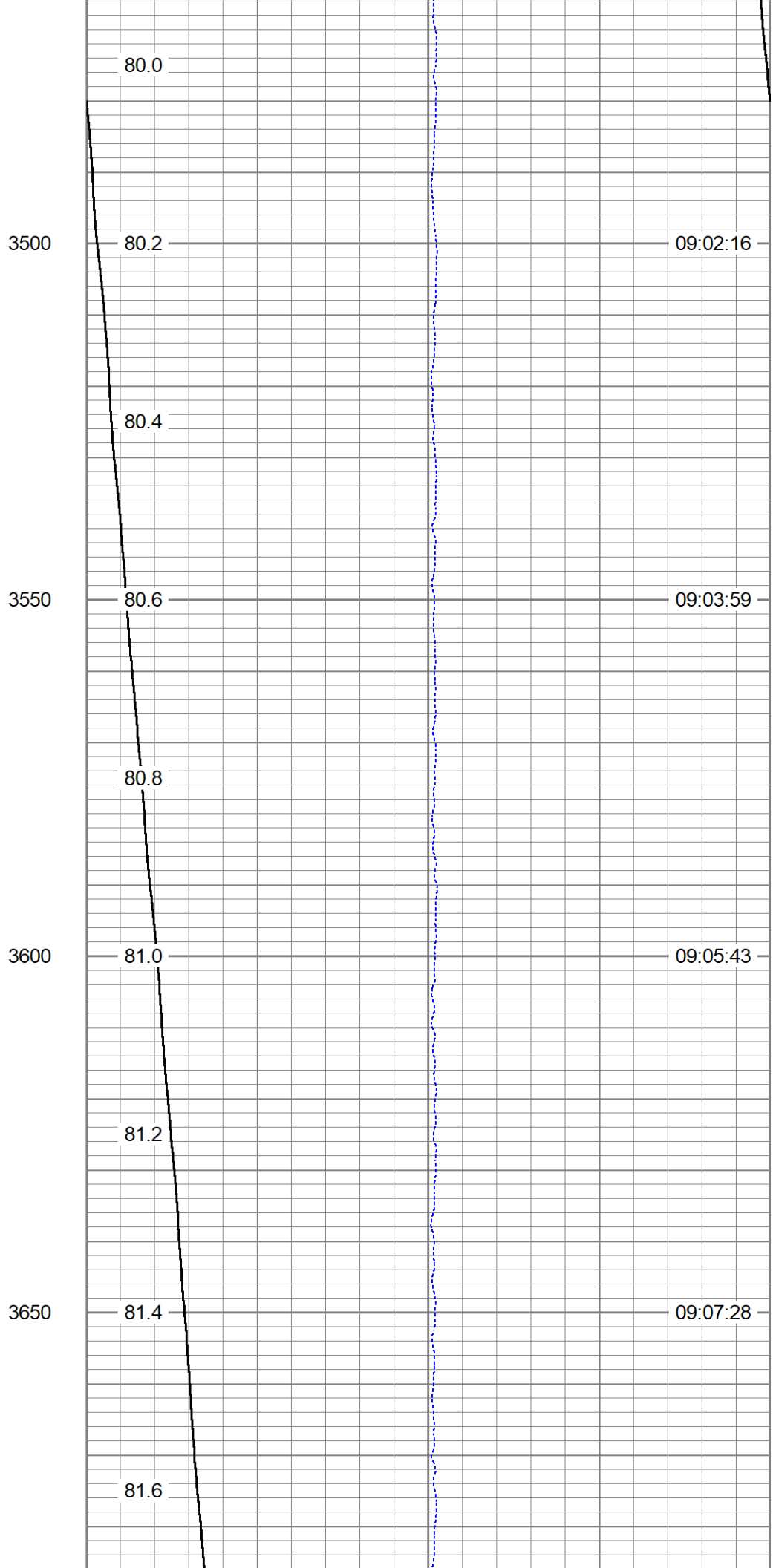
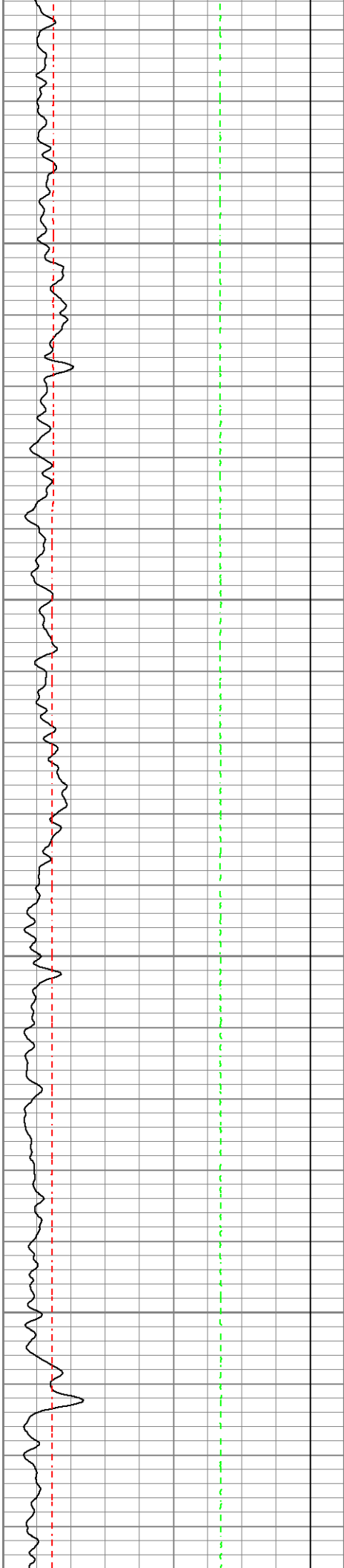
79.5

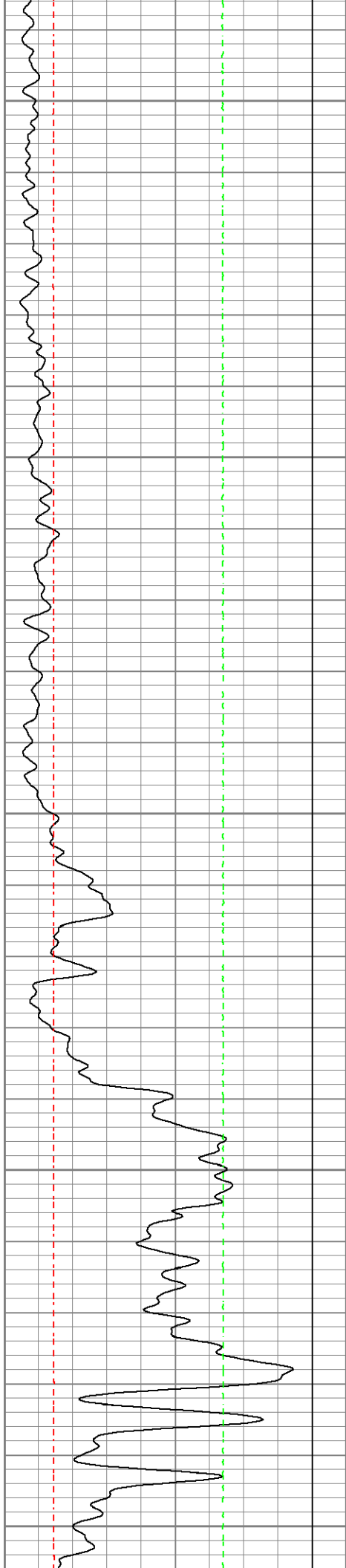
3450

79.8

09:00:34







3700

81.8

09:09:13

82.1

3750

82.2

09:10:57

82.4

3800

82.6

09:12:42

82.8

3850

83.1

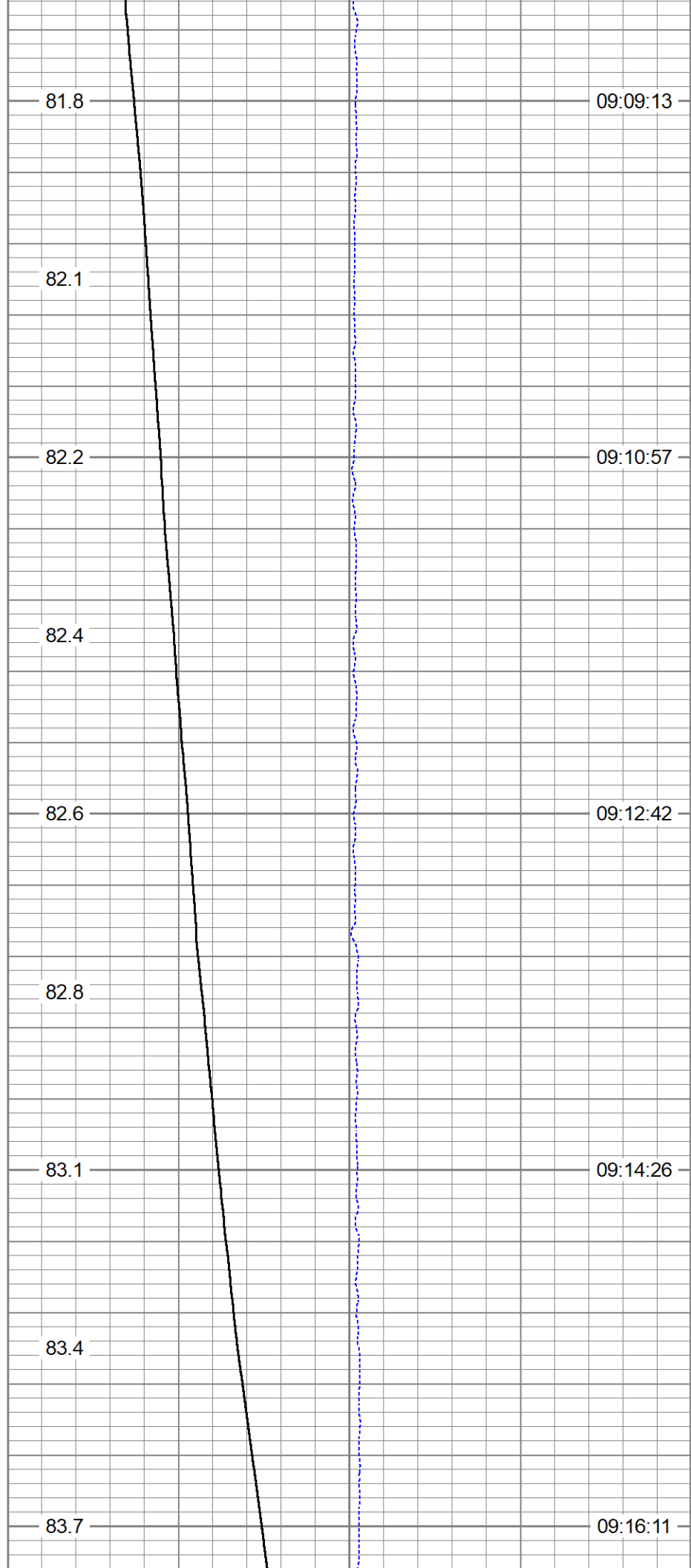
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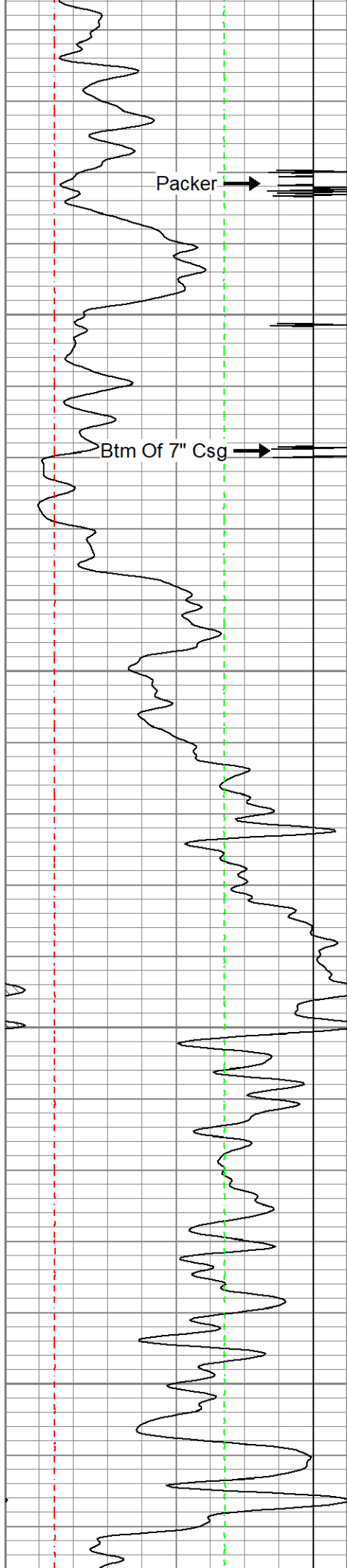
83.4

3900

83.7

09:16:11





3950

4000

4050

4100

84.0

84.4

84.6

84.8

84.9

85.2

85.4

85.7

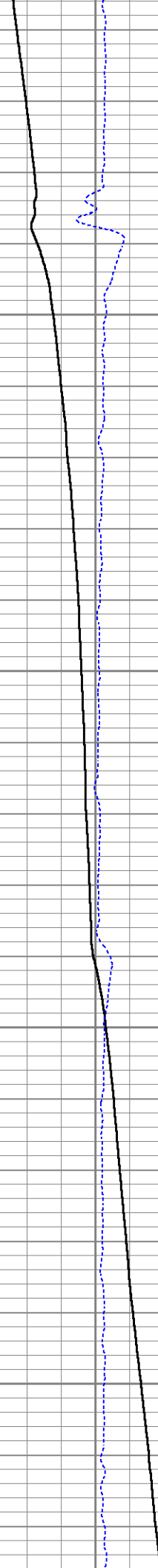
85.9

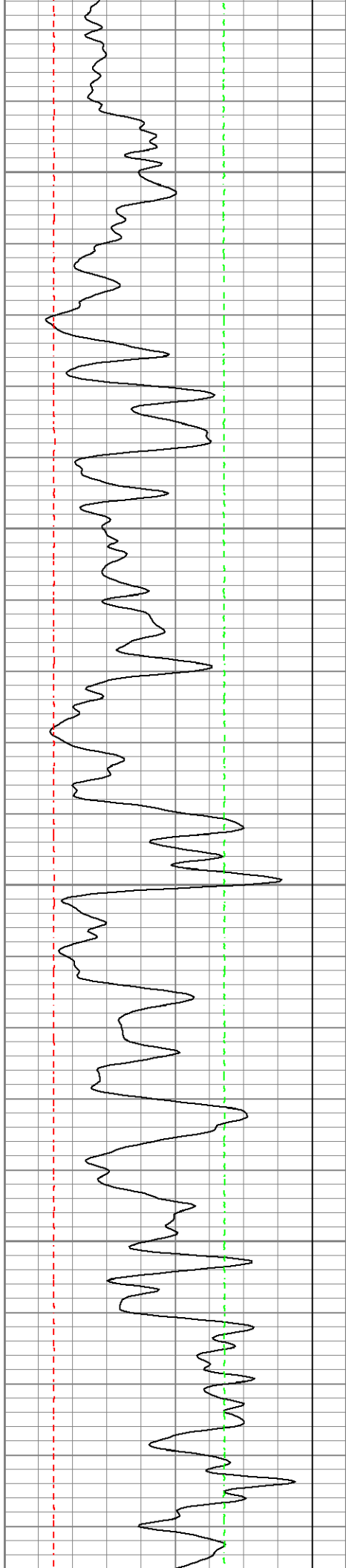
09:17:55

09:19:40

09:21:24

09:23:08





4150

86.2

09:24:52

86.5

4200

86.9

09:26:36

87.4

4250

87.6

09:28:20

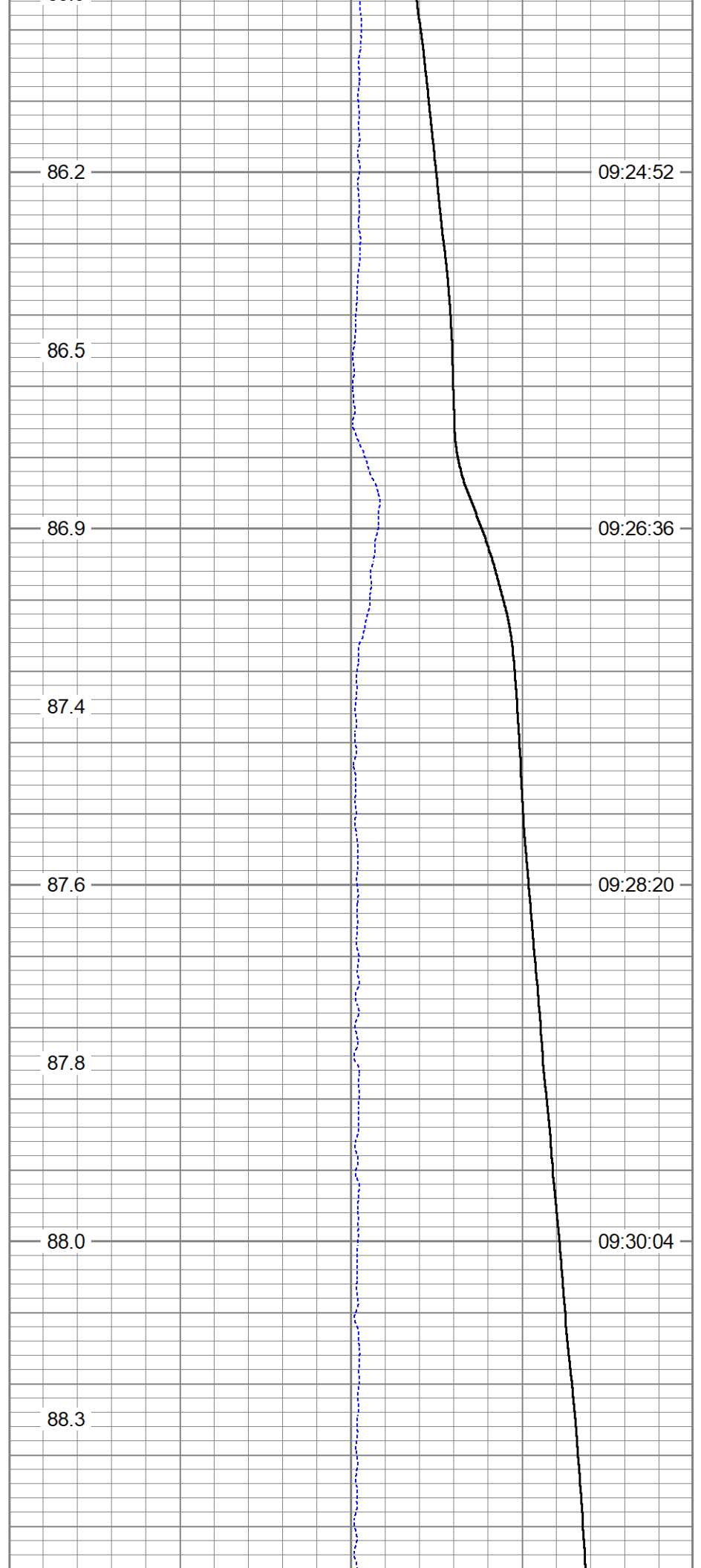
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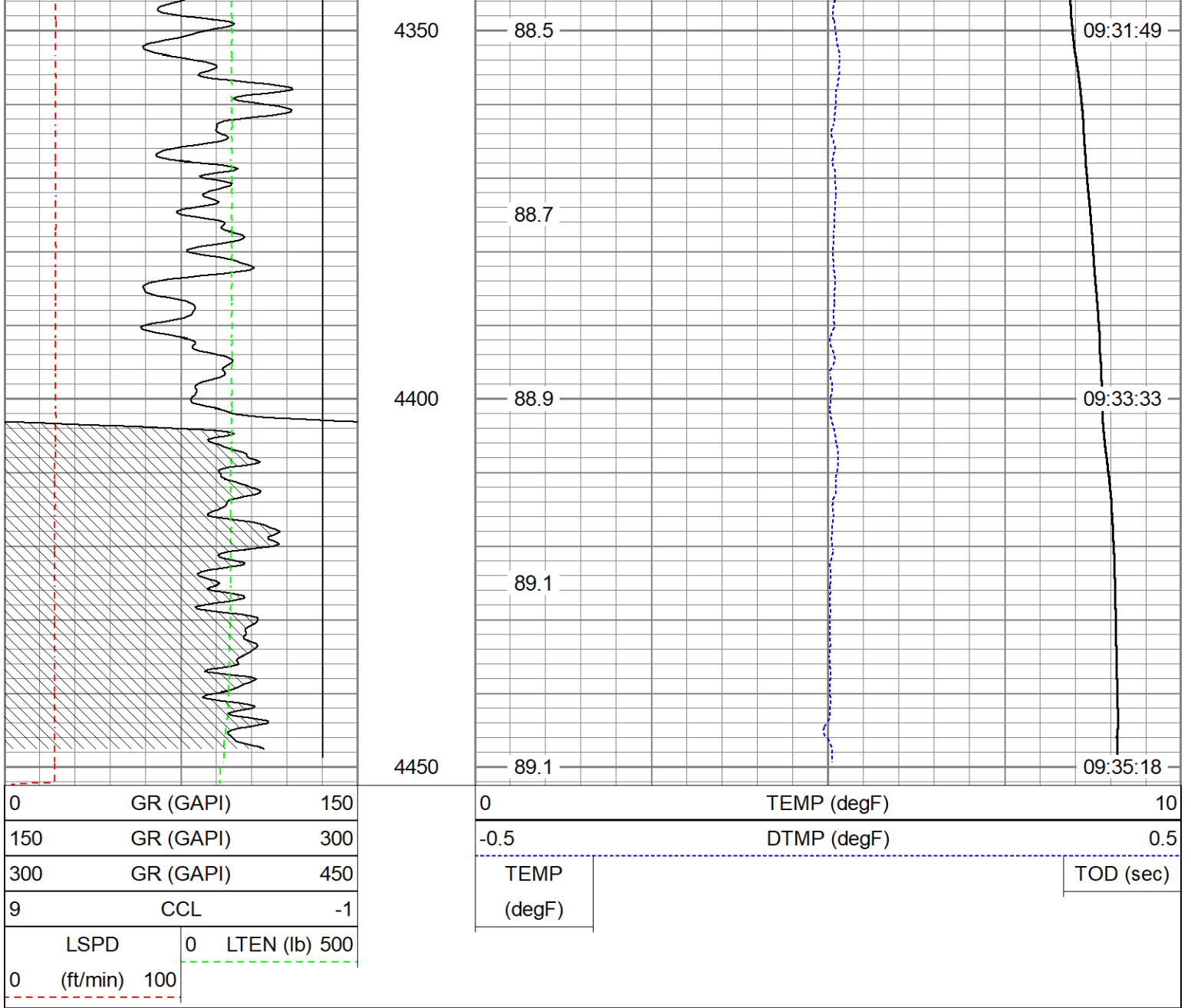
4300


88.0

09:30:04

88.3



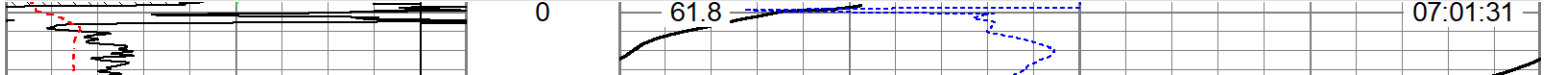
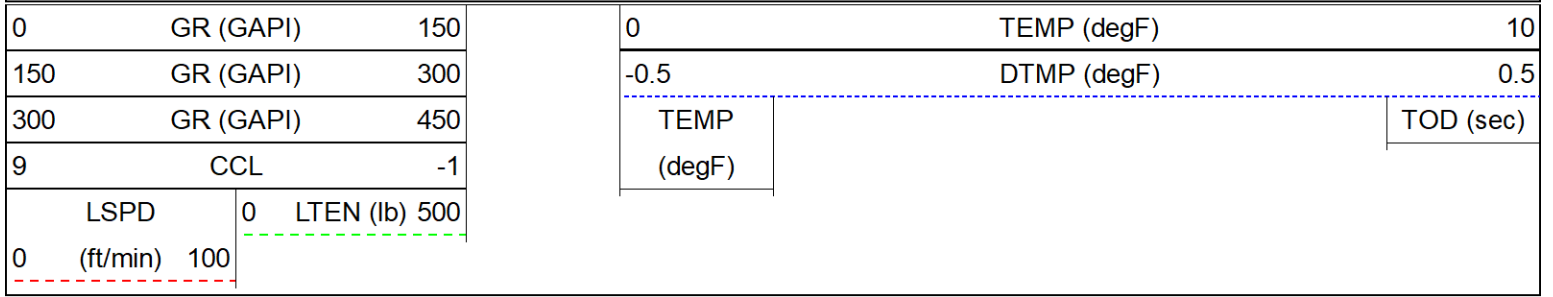


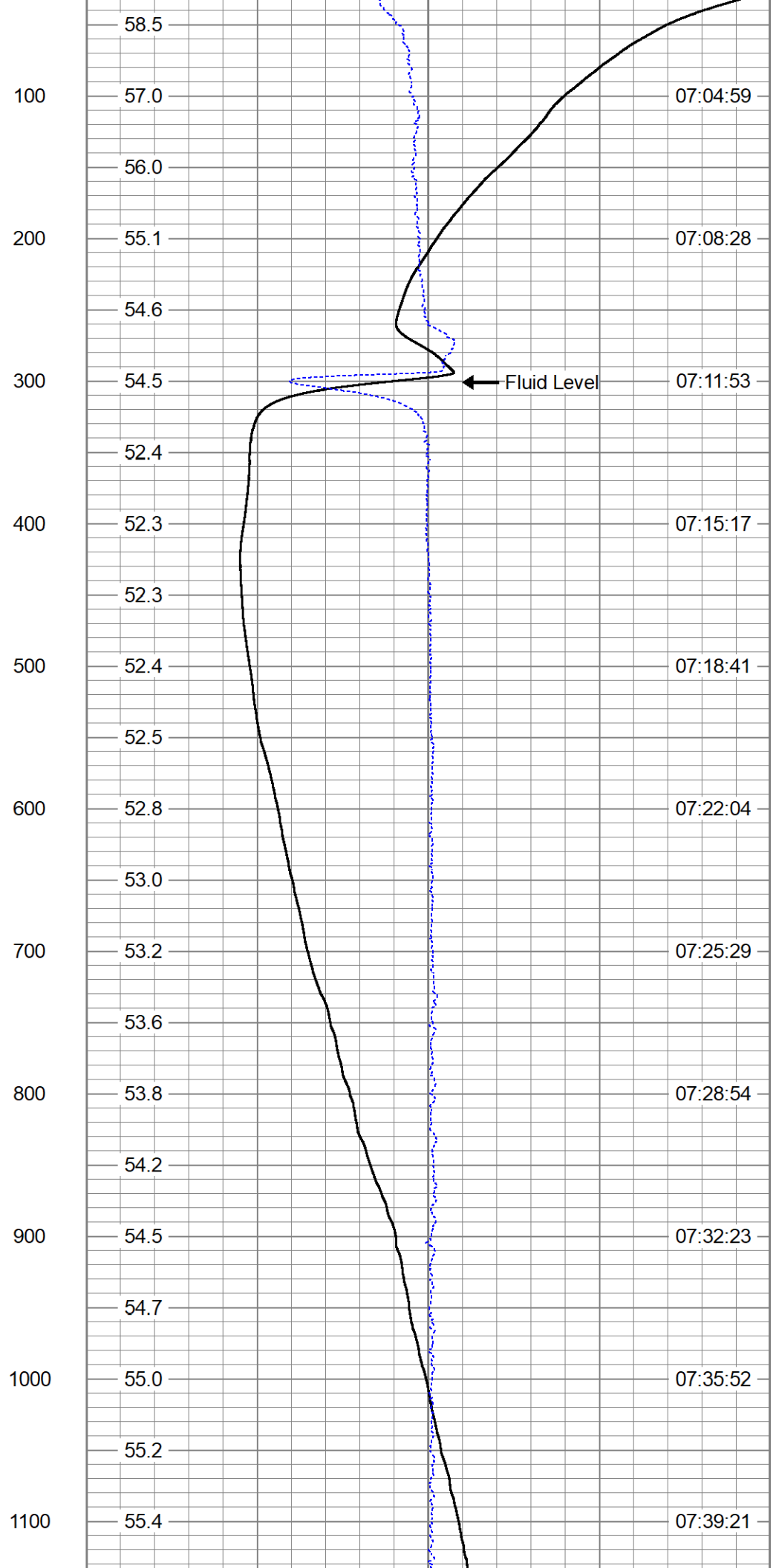
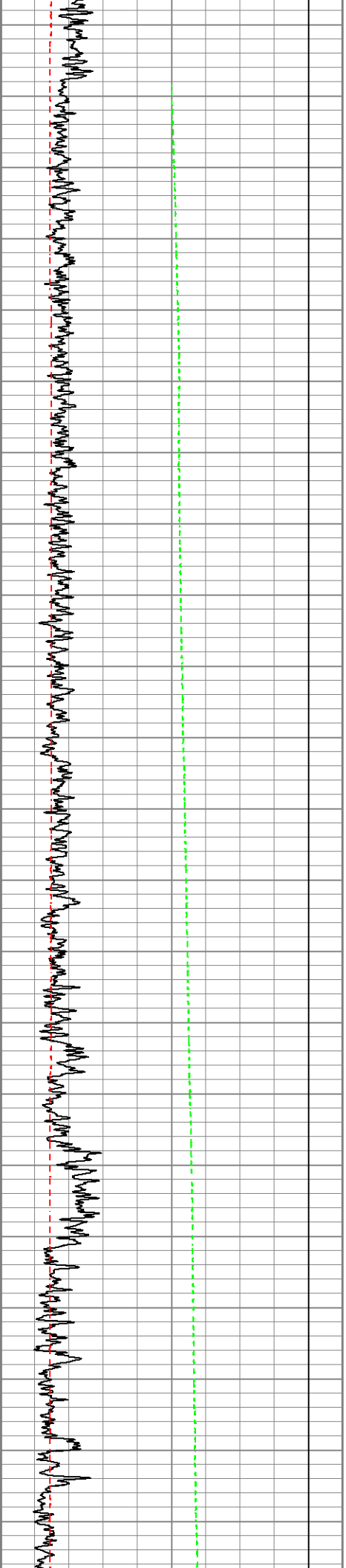


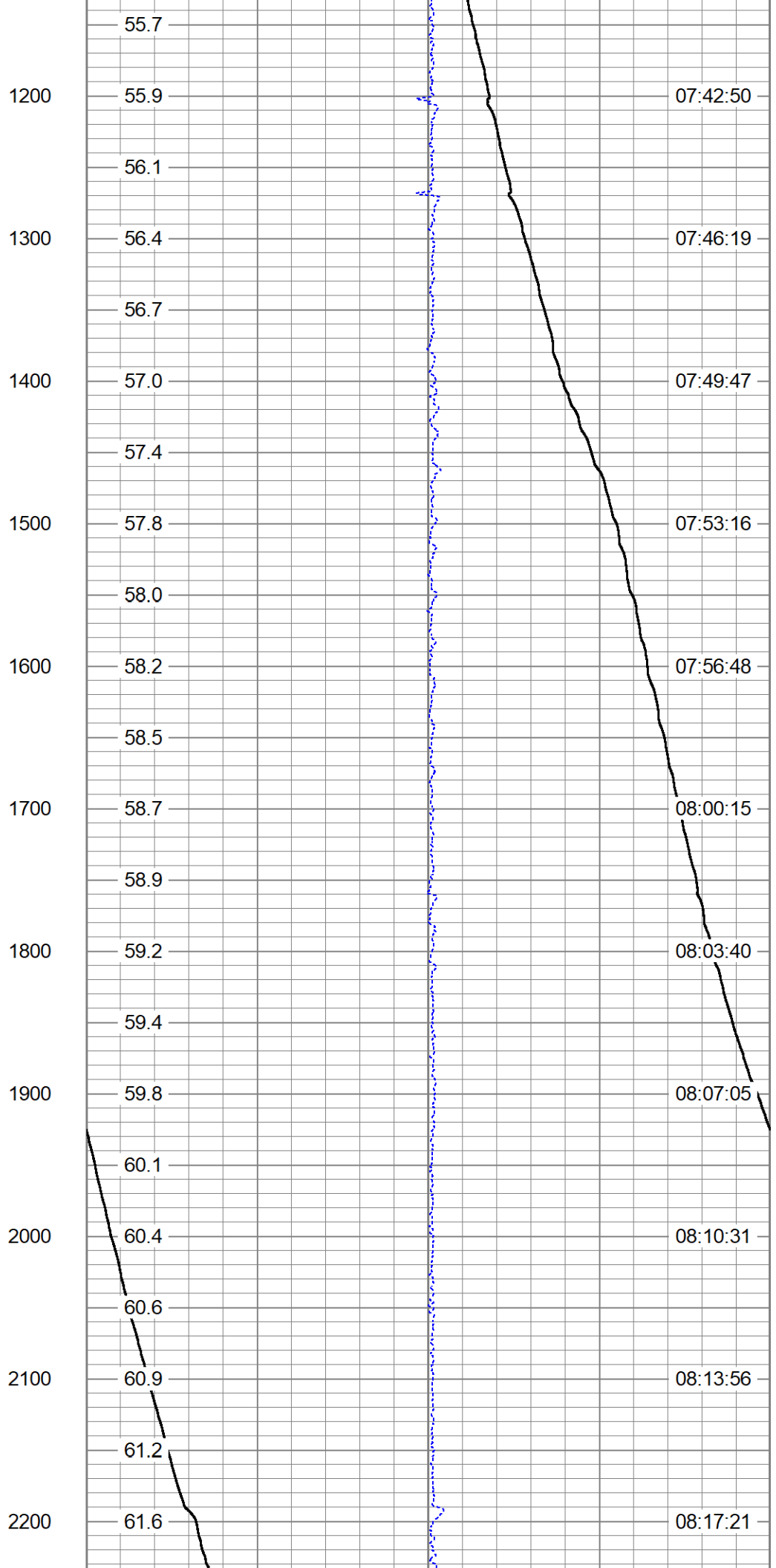
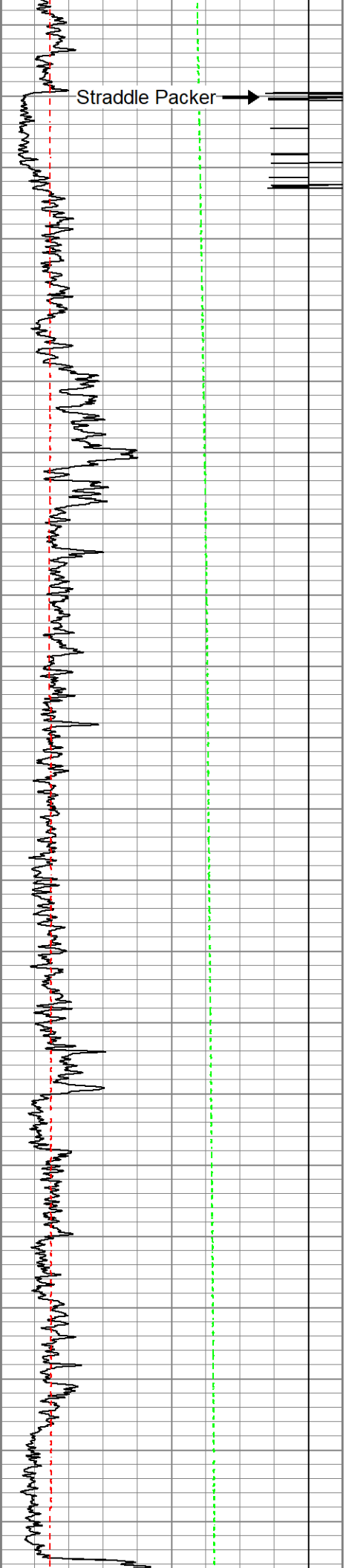
# MAIN PASS

## 1 INCH / 100 FEET

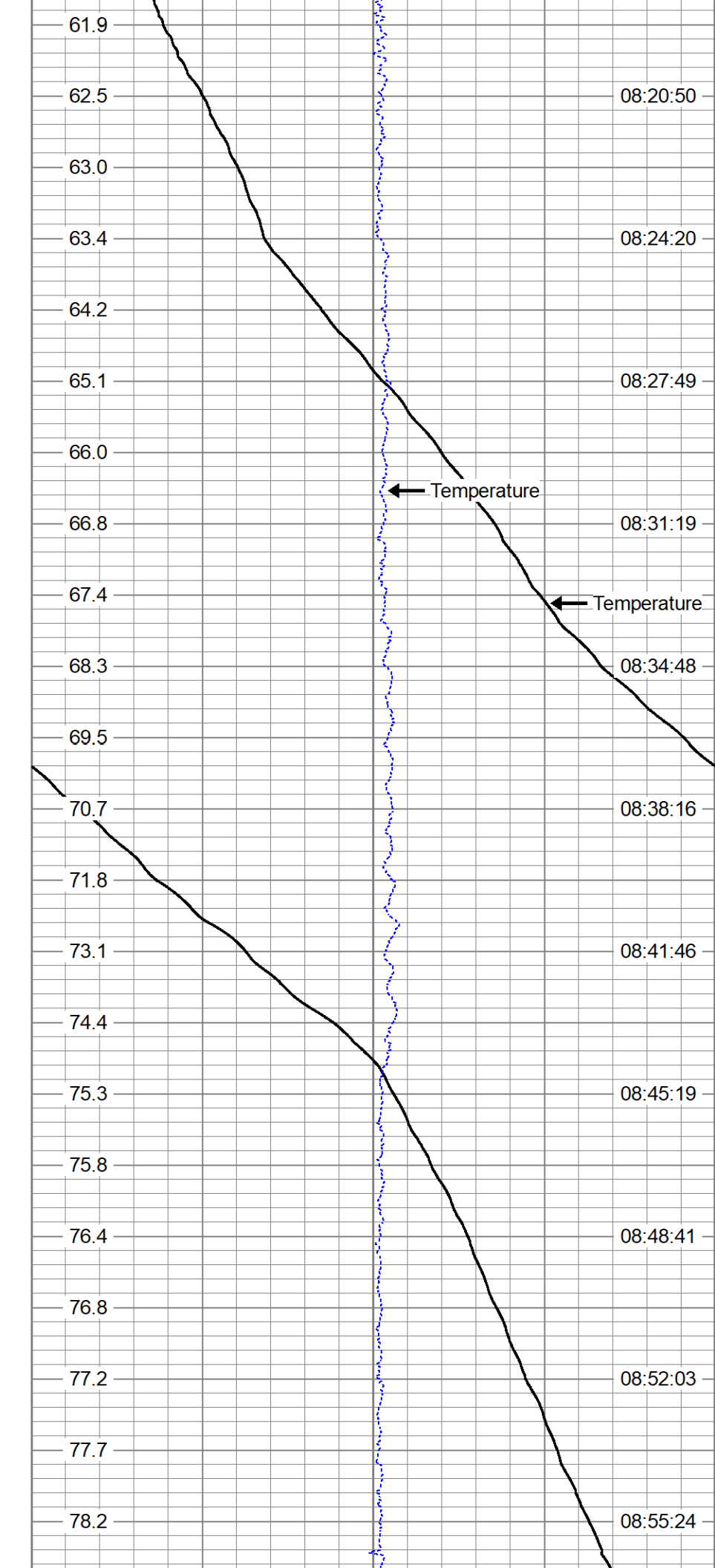
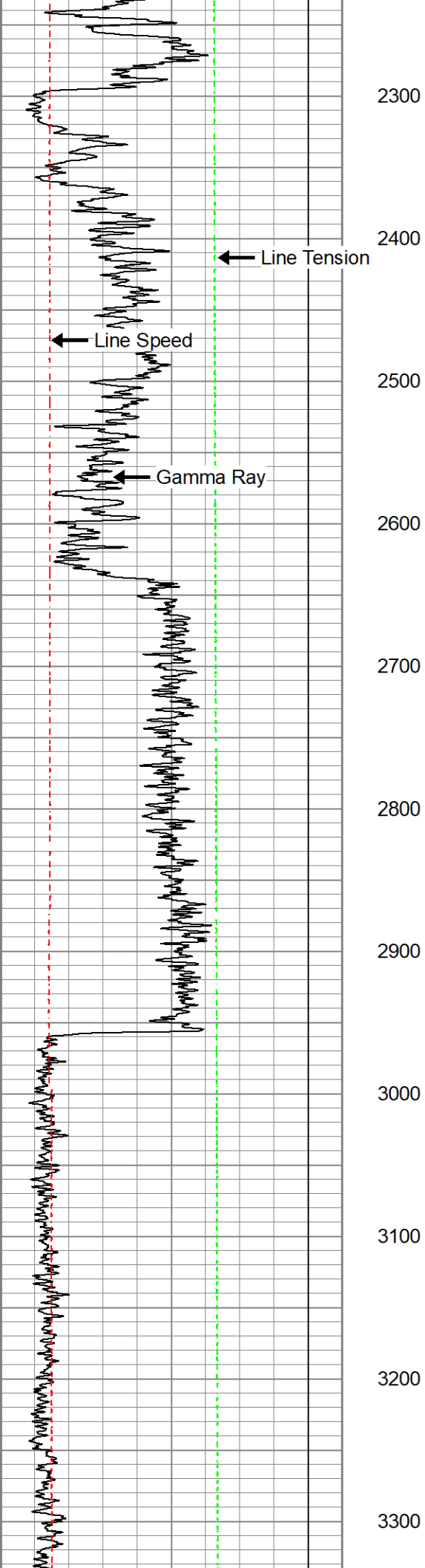
Database File 212temp.db  
 Dataset Pathname TEMP.1  
 Presentation Format temp  
 Dataset Creation Wed Sep 30 10:09:31 2020  
 Charted by Depth in Feet scaled 1:1200

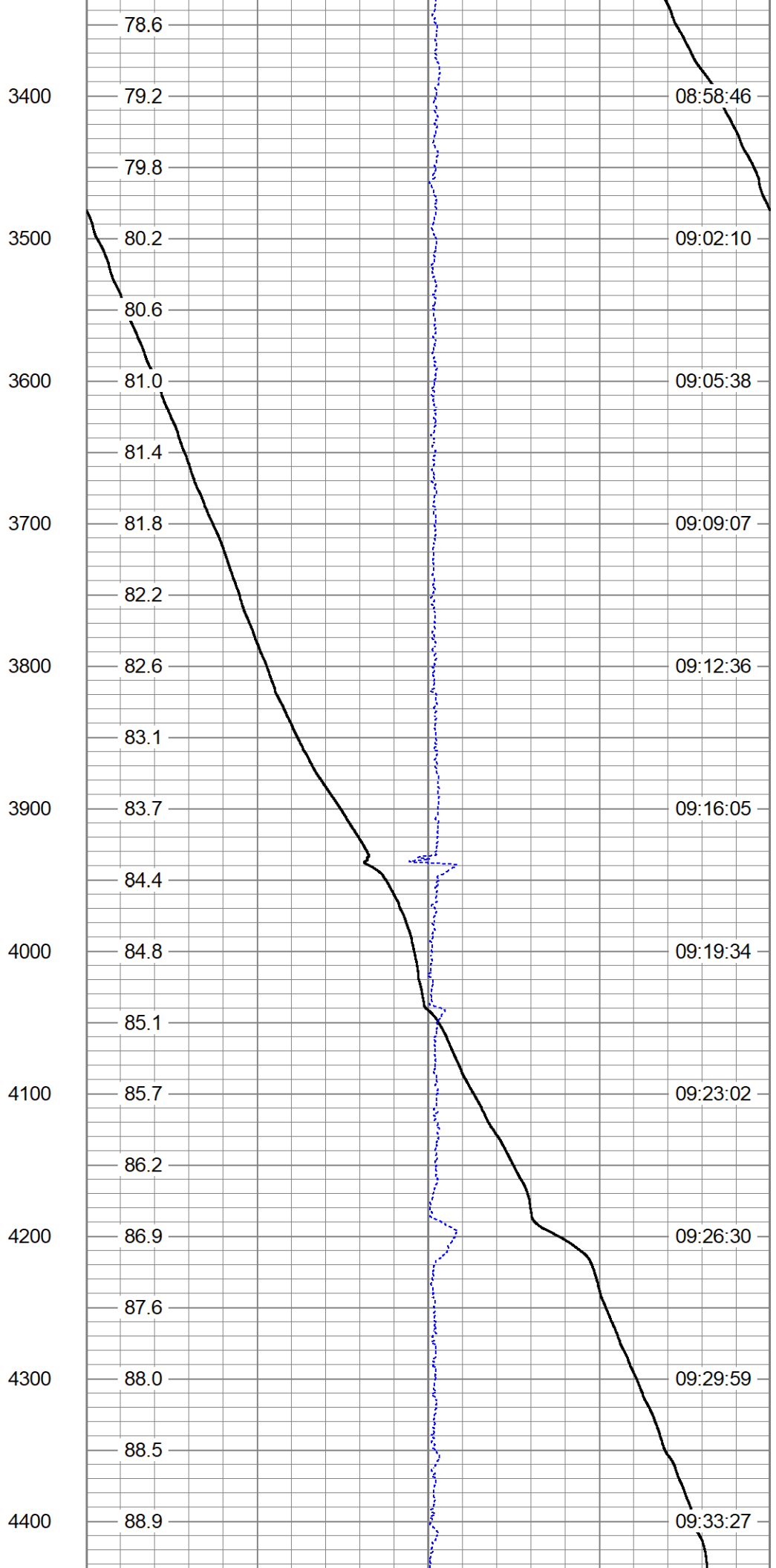
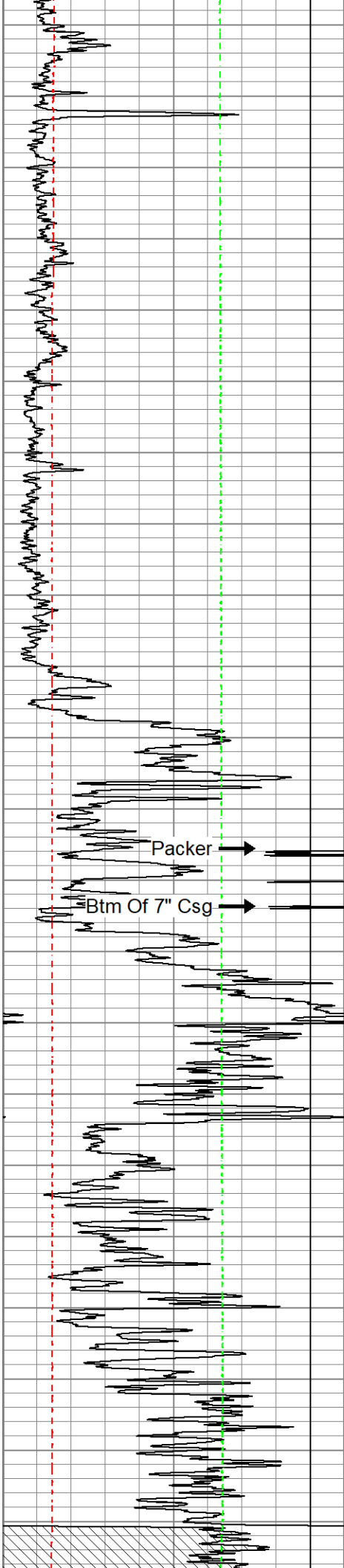












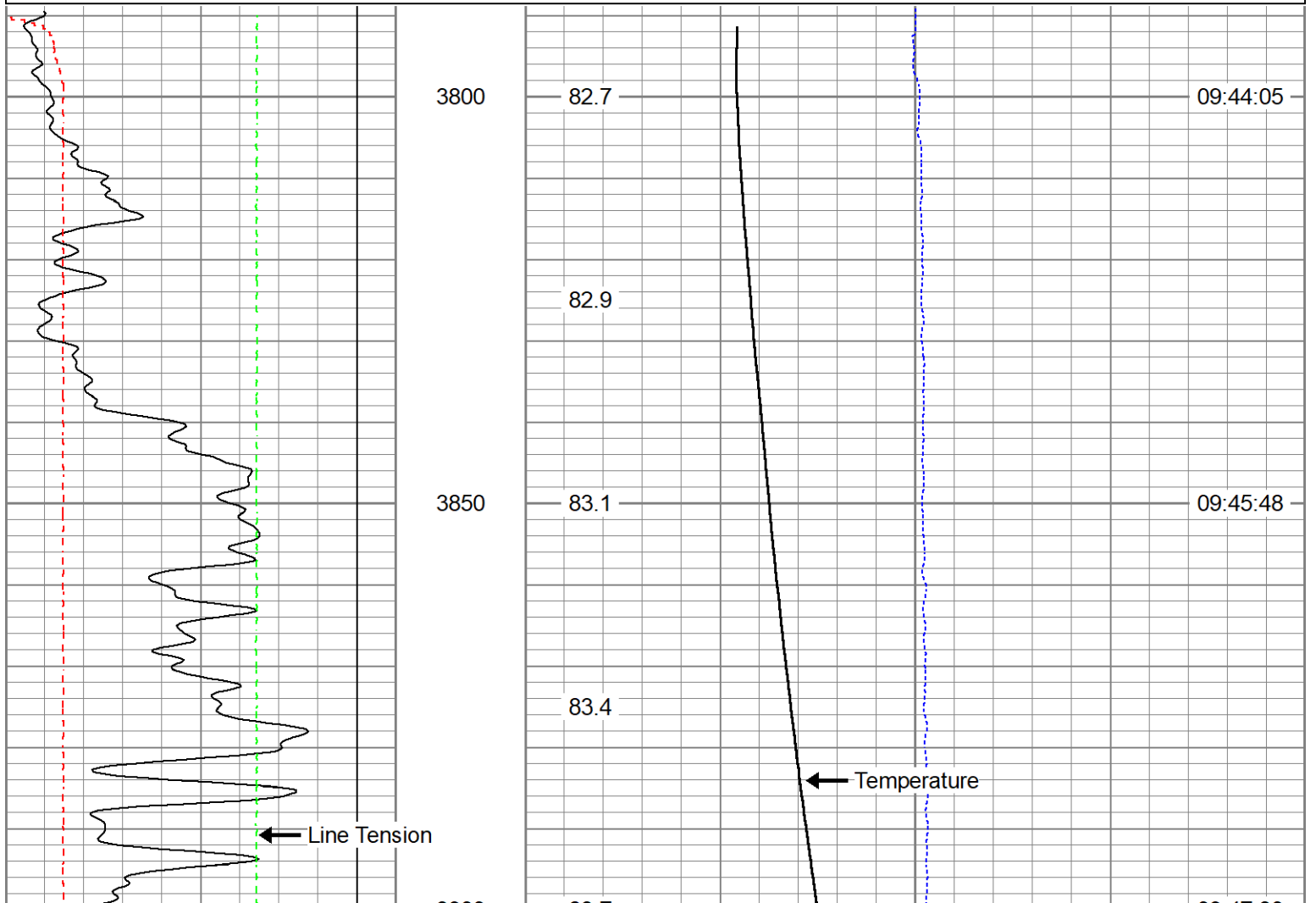
0	GR (GAPI)	150	89.1	TEMP (degF)	10
150	GR (GAPI)	300	-0.5	DTMP (degF)	0.5
300	GR (GAPI)	450	TEMP	TOD (sec)	
9	CCL	-1	(degF)		
LSPD	0	LTEN (lb)	500		
0	(ft/min)	100			

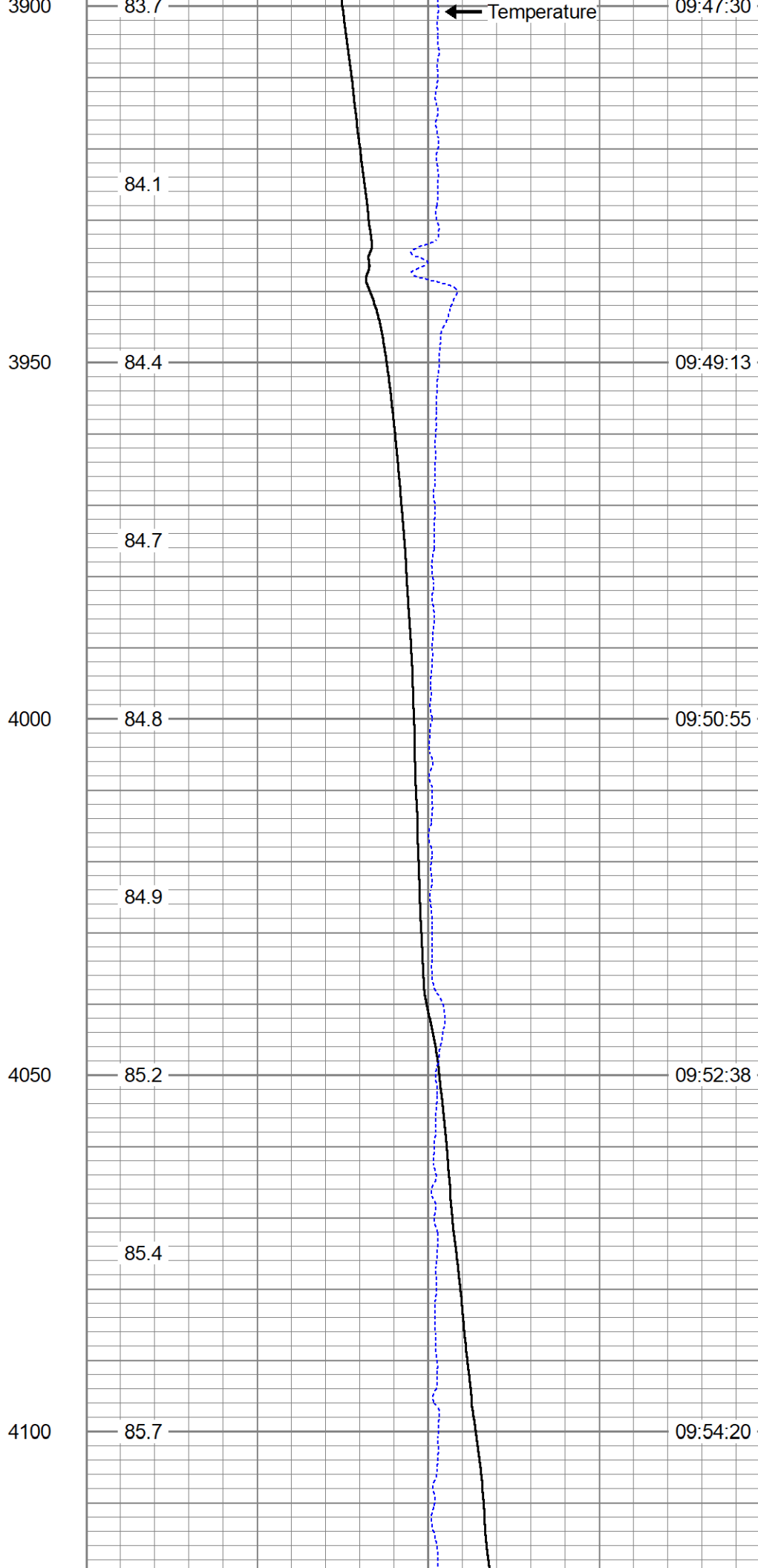
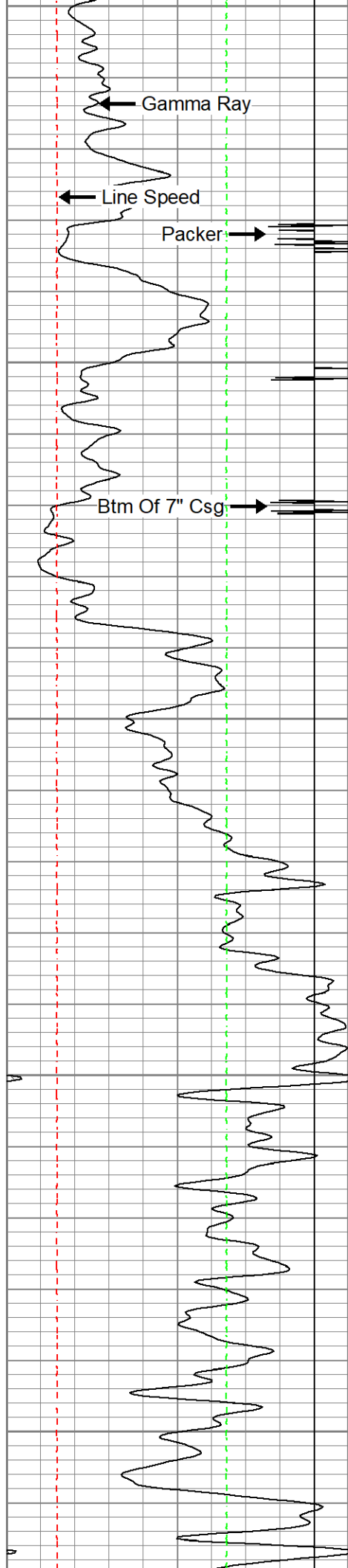


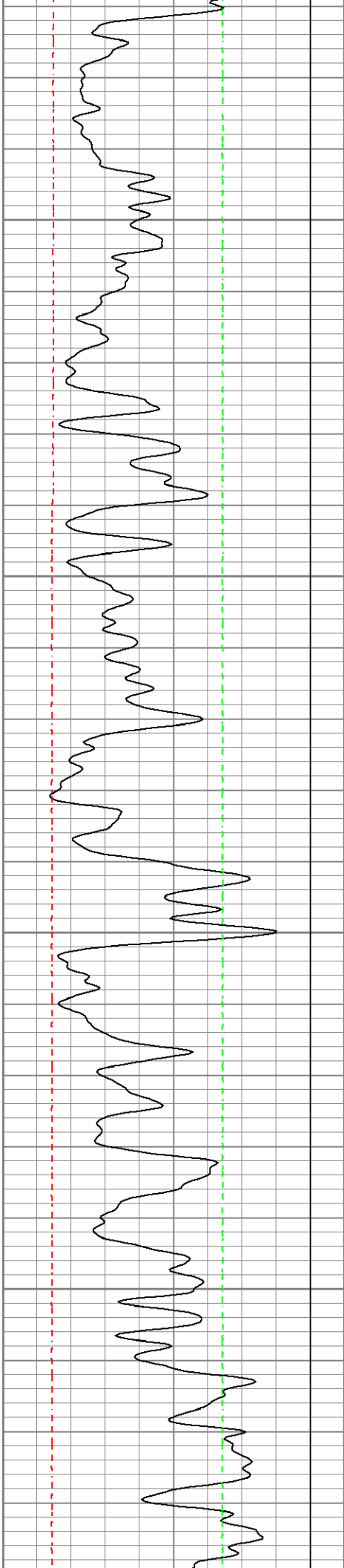
# REPEAT SECTION

Database File: 212temp.db  
 Dataset Pathname: REPEAT  
 Presentation Format: temp  
 Dataset Creation: Wed Sep 30 09:43:41 2020  
 Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	150	0	TEMP (degF)	10
150	GR (GAPI)	300	-0.5	DTMP (degF)	0.5
300	GR (GAPI)	450	TEMP	TOD (sec)	
9	CCL	-1	(degF)		
LSPD	0	LTEN (lb)	500		
0	(ft/min)	100			







4150

4200

4250

4300

86.0

86.3

86.5

86.9

87.4

87.6

87.8

88.0

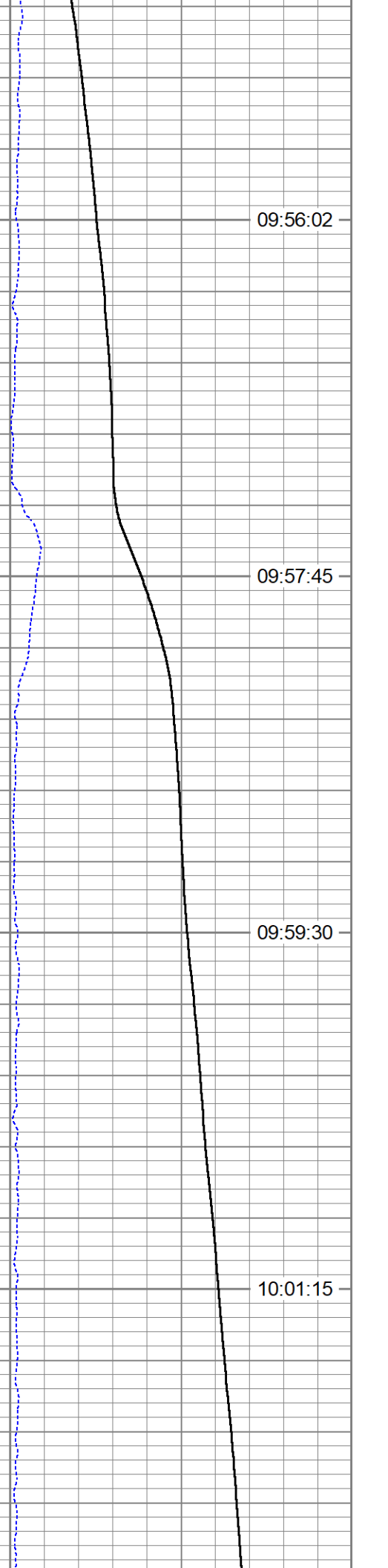
88.3

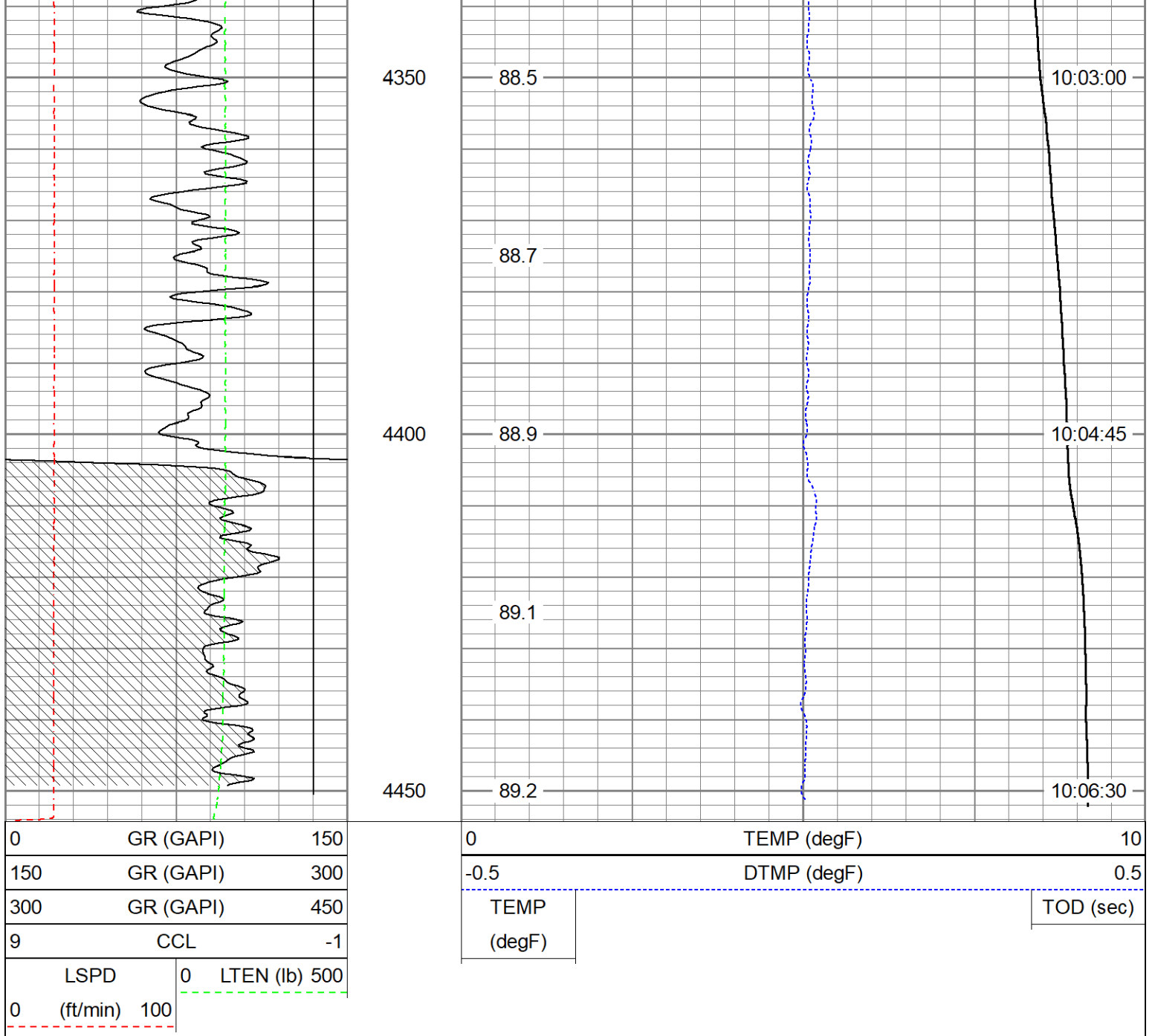
09:56:02

09:57:45

09:59:30

10:01:15





### Calibration Report

Database File 212temp.db  
 Dataset Pathname TEMP  
 Dataset Creation Wed Sep 30 07:01:09 2020

### Temperature Calibration Report

Serial Number: 169\_22  
 Tool Model: DSS\_169\_22  
 Performed: Wed Sep 30 06:48:11 2020

	Reference	Reading
Low Reference:	48.00 degF	176.38 cps
High Reference:	117.00 degF	955.50 cps

Gain: 0.09  
 Offset: 32.38  
 Delta Spacing 2

### Gamma Ray Calibration Report

Serial Number: 169\_22  
 Tool Model: DSS\_169\_22  
 Performed: (Not Performed)

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 1.0000 GAPI/cps

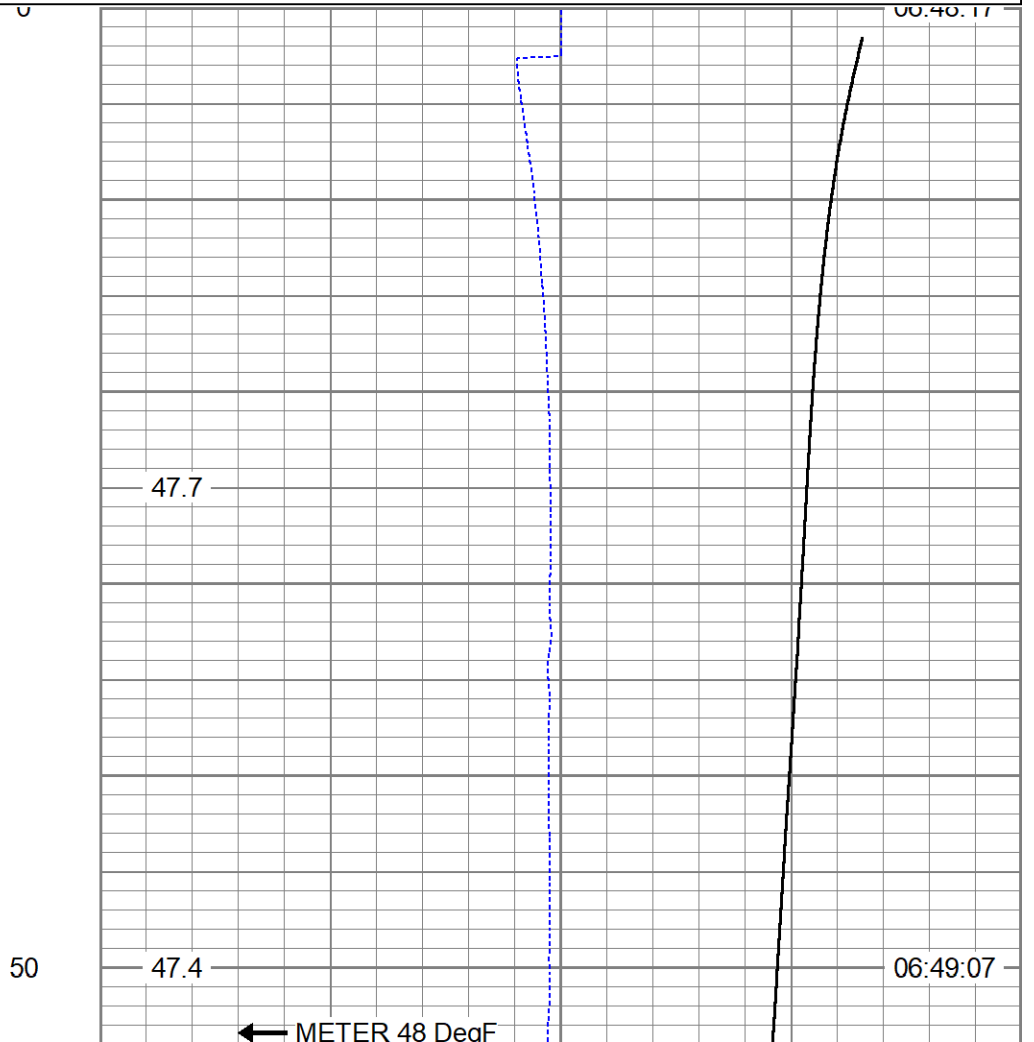
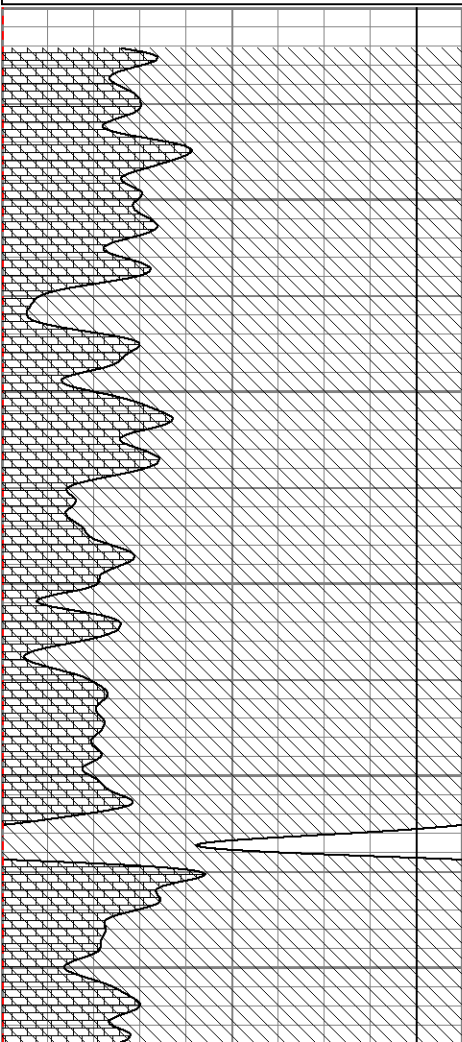


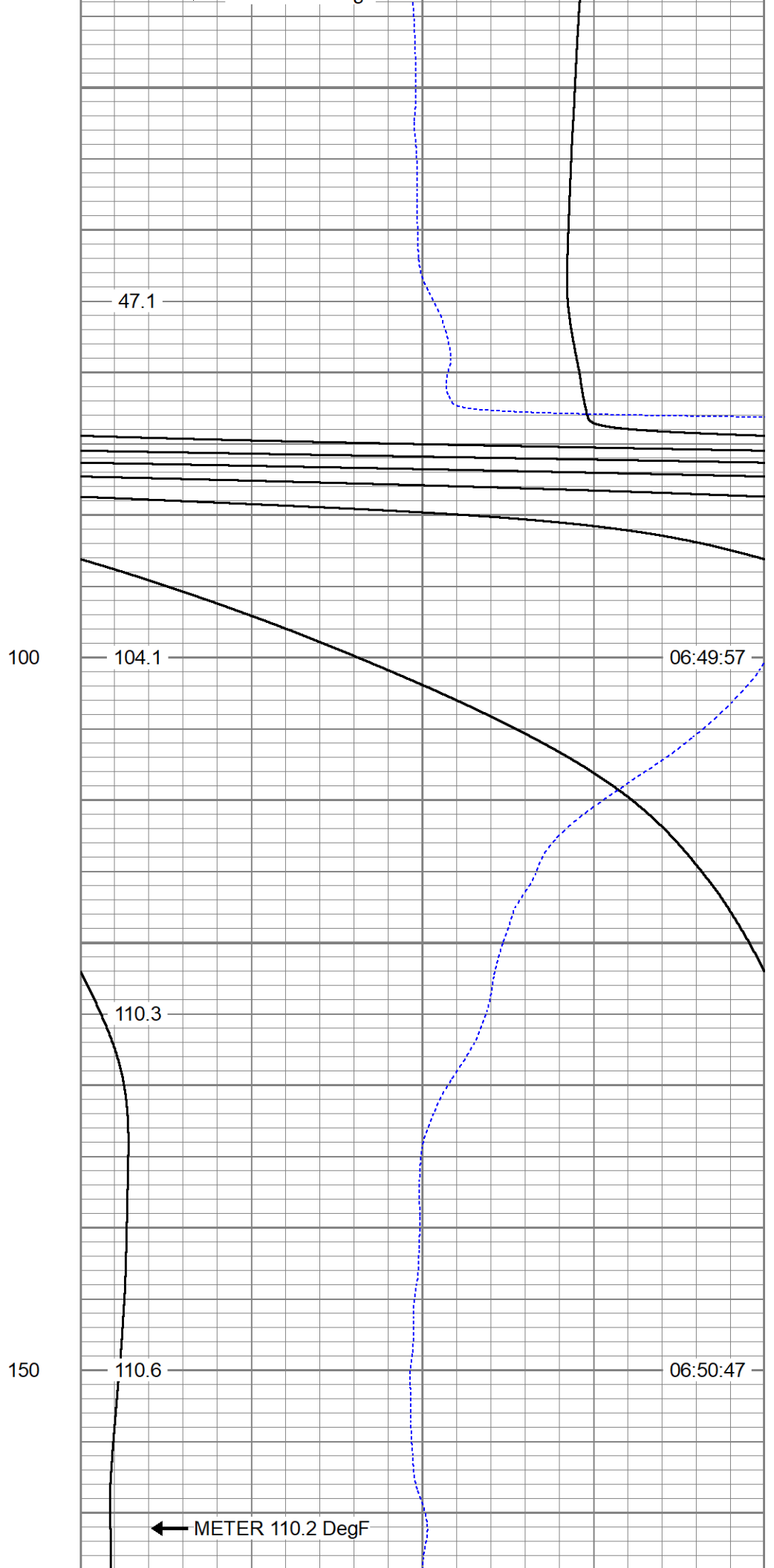
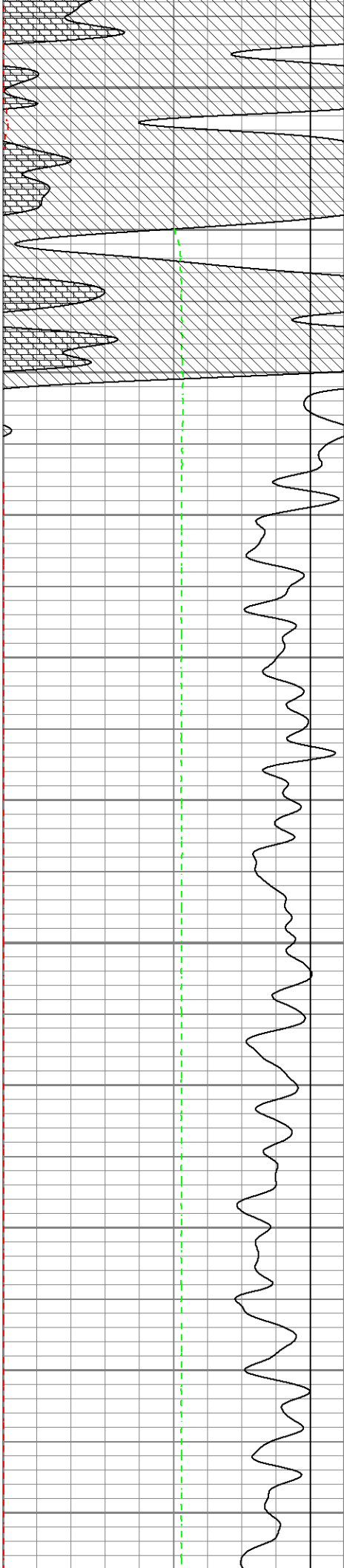
# BUCKET CALIBRATION

Database File 212temp.db  
 Dataset Pathname BUCKETCAL  
 Presentation Format temp  
 Dataset Creation Wed Sep 30 06:48:17 2020  
 Charted by Time scaled 360/hour

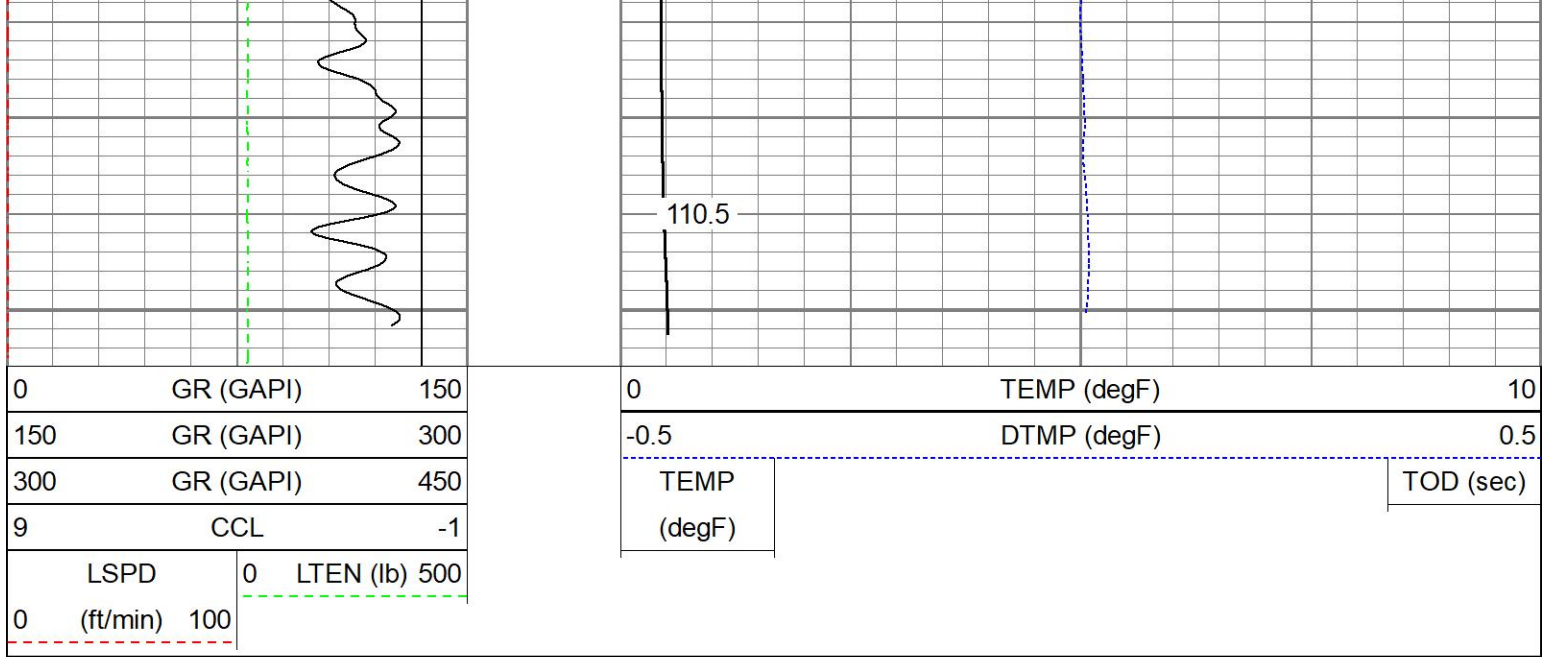
0	GR (GAPI)	150
150	GR (GAPI)	300
300	GR (GAPI)	450
9	CCL	-1
LSPD	0	LTEN (lb) 500
0 (ft/min)	100	

0	TEMP (degF)	10
-0.5	DTMP (degF)	0.5
TEMP (degF)		TOD (sec)









Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	3.69					
GR	2.73					
TEMP LOCTIM	0.09 0.00		TEMP-DSS_169_22 (169_22) DSS 1 11/16 Temp Gr CCL #22	4.44	1.69	30.00
Dataset: 212temp.db: field/well/run1/TEMP Total length: 4.44 ft Total weight: 30.00 lb O.D.: 1.69 in						