

LONQUIST & CO. LLC

PETROLEUM
ENGINEERS

ENERGY
ADVISORS

AUSTIN · HOUSTON · WICHITA · DENVER · CALGARY

July 17, 2018

Mr. William V. Jones,
District 4 Supervisor
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

**RE: WESTERN REFINING COMPANY, LP
SHELL STATE NO. 13 ANNUAL RADIOACTIVE TRACER SURVEY (2018)**

Mr. Jones,

Attached, please find the Radioactive Tracer Survey that was run on the Shell State No. 13 disposal well located at the Western Refining facility, Plant No. 4, 10 miles north of Jal, NM on July 12, 2018

The Radioactive Tracer Survey indicates all fluid is going into the perforations. There was no indication of channeling or fluid migration behind the casing.

If you have any questions or require any additional information, please contact me at (832) 797-3238.

Sincerely,



Krystyn Strong
Petroleum Engineer
Lonquist & Co., LLC
(713) 987-4292
(832) 797-3238
krystyn@lonquist.com



QES WIRELINE LLC

**RADIOACTIVE
TRACER
SURVEY**

Company		WESTERN REFINING	
Well		SHELL STATE "13" SWD # 1	
Field		LANGLIE MATTIX	
County		LEA	
State		NM	
Location:		API # : 30-02510620	
SEC 32 TWP 23-S RGE 37-E		NW1/4 & SW1/4	
Permanent Datum		Elevation 3304'	
Log Measured From		Above Perm. Datum	
Drilling Measured From		Elevation	
		K.B. N/A	
		D.F. N/A	
		G.L. 3304'	
Other Services		NONE	
Date 07/12/2018			
Run Number 2			
Depth Driller 3998			
Depth Logger 3927			
Bottom Logged Interval 3926			
Top Log Interval SURFACE			
Open Hole Size N/A			
Type Fluid FSW			
Density / Viscosity N/A			
Max. Recorded Temp. N/A			
Estimated Cement Top N/A			
Time Well Ready 0800			
Time Logger on Bottom 1030			
Equipment Number 101			
Location LAND			
Recorded By DEWAR			
Witnessed By STRONG			
Borehole Record			
Run Number Bit From To Size Weight From To			
Casing Record			
Surface String Size Wgt/Ft Top Bottom			
Prot. String			
Production String			
Liner			

<<< Fold Here >>>

Contractor does not warrant the accuracy of log data, including but not limited to the accuracy of log data transmitted by electronic process, and Contractor shall have no liability for the accidental or intentional interception of such data by third parties. In making any interpretation of logs, Contractor's personnel will give Operator the benefit of their judgment as to the correct interpretation, however, Contractor disclaims any warranty or guarantee of interpretations of data provided by Contractor's personnel; these are opinions only and Operator assumes full responsibility for the use of such opinions. Under no circumstances should any interpretation or recommendation of Contractor's personnel be relied upon as any part of the basis for any drilling, completion, well treatment or production decision or any procedure including any risk to the safety of any drilling venture, drilling contractor or its crew or any other individual, except as is otherwise expressly provided pursuant to the terms of the contract, contractor makes no warranty of any kind, express or implied (including, without limitation, implied warranties of merchantability or fitness for a particular purpose), regarding the equipment, goods and services it furnishes hereunder.

Comments

THANKS FOR USING QES WIRELINE!
YOUR CREW WAS K.DEWAR & S. HORVATH
WELL HEAD CONNECTION 2" LP



R/A TRACER LOG INTERPRETATION

07/17/2018

PLANT: WESTERN REFINING

C/O: MR. WILL GEORGE

WELL NAME: SHELL STATE 13 SWD # 1

RE: Radioactive Survey ran on 07/12/2018

A Pre Base Log was run from 3928' to 2492' to detect and record background gamma counts.

Iodine 131 was then ejected at a depth of 2650' and pumped down the 2 7/8" Slimhole casing and into the permitted interval. Overlapping logging passes tracked the R/A tracer material as it moved down in the wellbore.

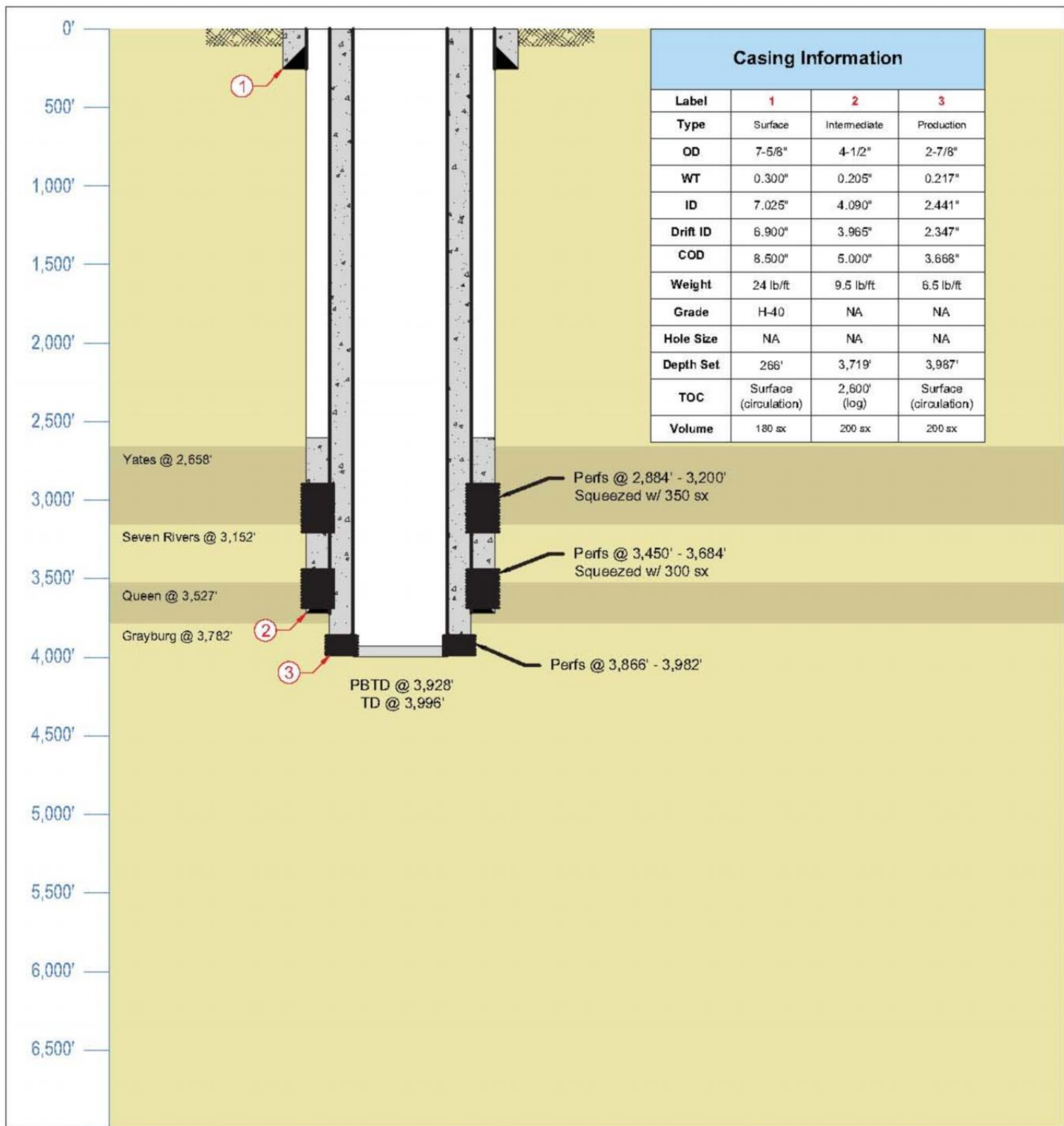
The flow profile log was then repeated and this survey also showed R/A material going out into the permitted interval.

A Stationary Time Drive survey was run with the tool at 3850'. No indications of upward migration were recorded.

A Post Base log was then run from 3928' to 2492' and noted that all R/A material was flushed out of the wellbore into the permitted interval.

A handwritten signature in black ink, reading 'John Croce', with a stylized, cursive script.

John Croce
Industrial Logging Department
4119 Chance Ln.
Rosharon, TX 77583



LONQUIST FIELD SERVICE AUSTIN WICHITA HOUSTON CALGARY	Western Refining Company, LP		Shell State No. 13	
	Country: USA	State/Province: New Mexico	County/Parish: Lea	
	Location:	Site:	Survey/STR: 32, 23-S, 37-E	
	API No: 30-025-10920	Field: Langlie Mattix	Well Type/Status: SWD	
	Texas License F-9147	Project No:	Date: 11/16/17	
3345 Bee Cave Road, Suite 201 Austin, Texas 78746 Tel: 512.732.9812 Fax: 512.732.9816	State ID No:	Drawn: WHG	Reviewed: ETB	Approved: ETB
	Rev No: 1	Notes:		

C:\USERS\WGEORGE\Documents\1. WILL Docs\1310 WESTERN REFINING - SHELL STATE No. 13 SWD\WBS\WBS SHELL STATE No. 13 20171116.dwg, 11/16/2017 10:20:06 AM, WGEORGE, AutoCAD PDF (GENERAL DOCUMENTATION).PC3

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)

Radioactive Tracer Summary Sheet

WELL INFORMATION

DATE:	7/12/2018
COMPANY:	WESTERN REFINING
WELL NAME:	SHELL STATE 13 SWD # 1
PLANT LOCATION:	LANGLIE MATTIX
COUNTY or PARISH:	LEA
STATE of TEST:	NEW MEXICO
EQUIPMENT LOCATION:	ROSHARON
LOGGING ENGINEER:	KURT DEWAR



WELL CONNECTION
2" LP

Ejector to Upper Detector = 1'8" / Ejector to Lower Detector = 3.74' / Upper to Lower Detector = 8'

[illegible]

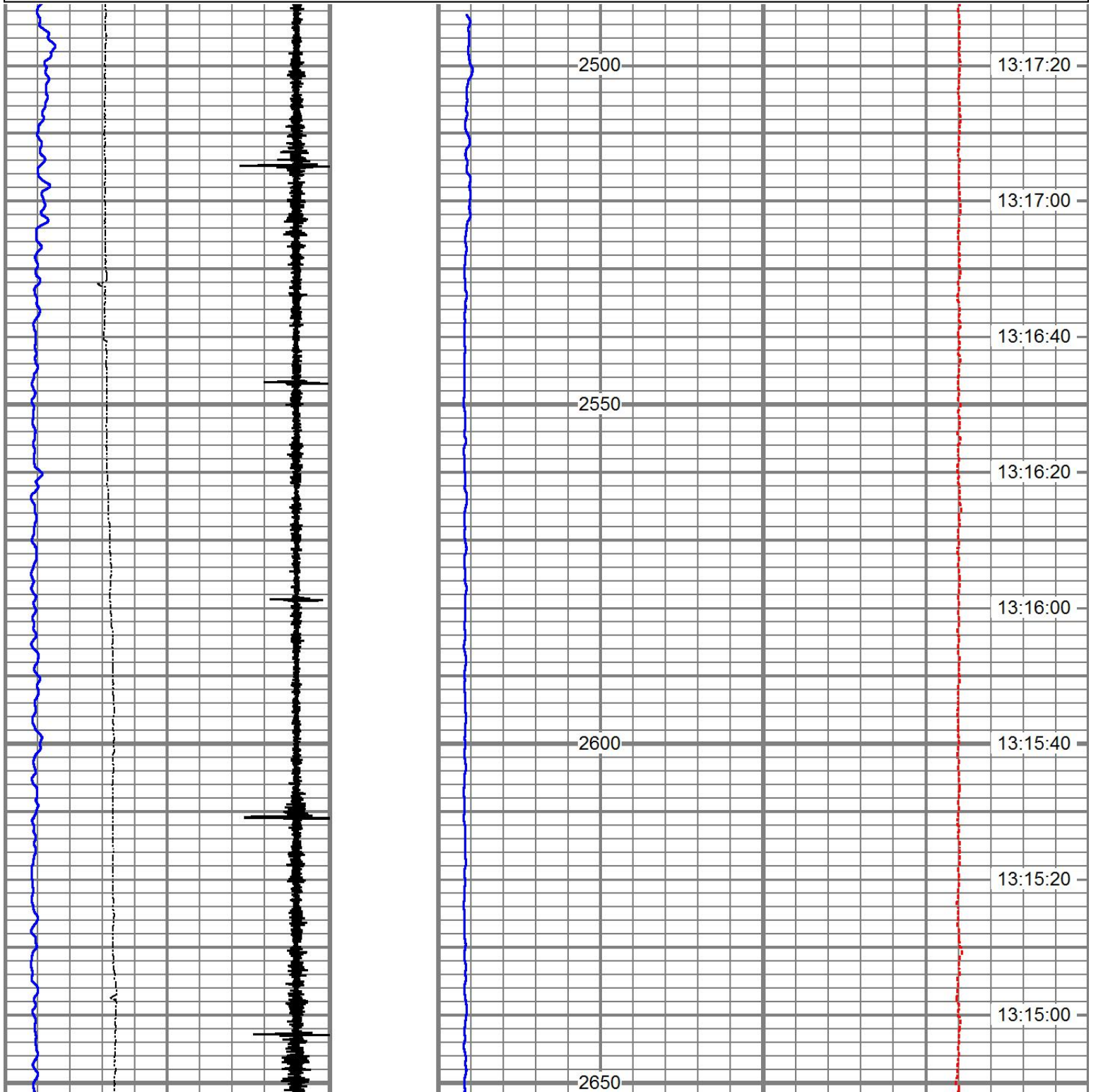


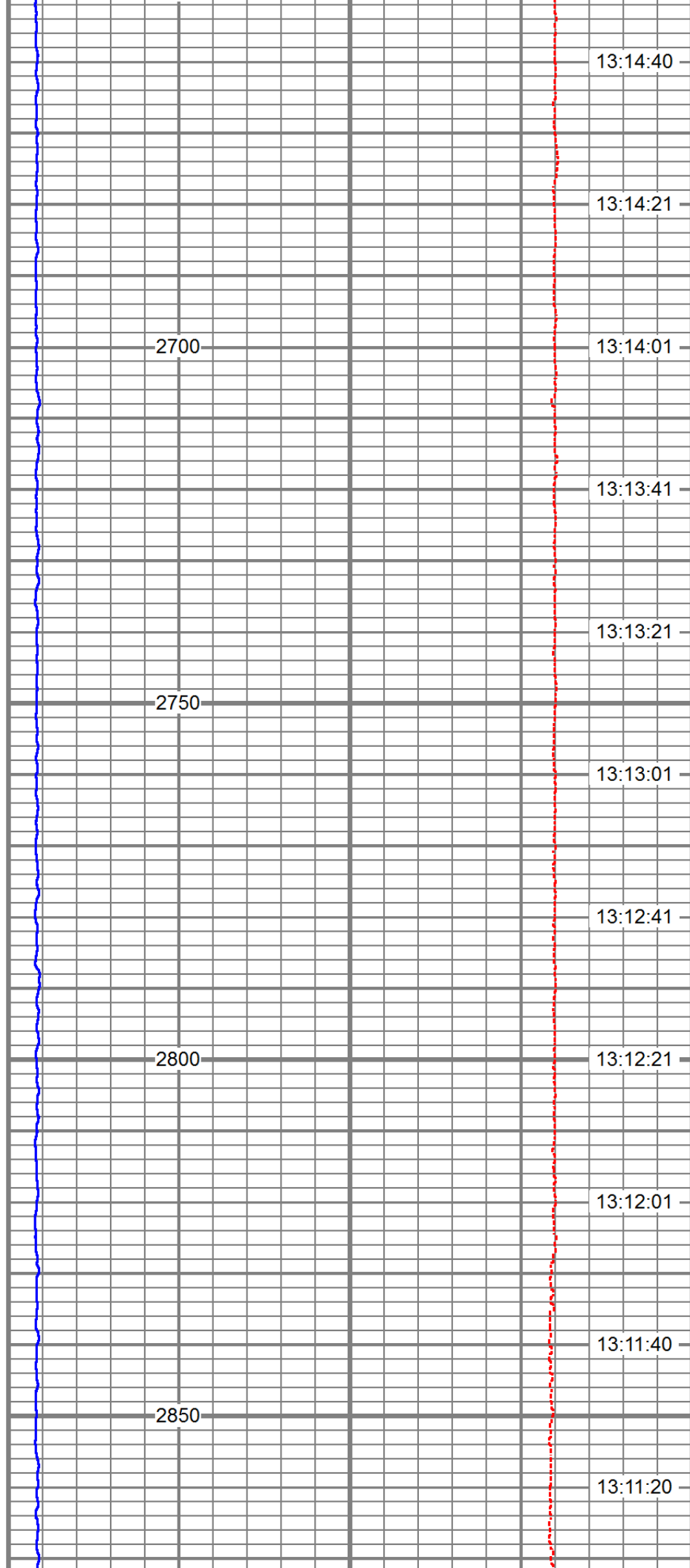
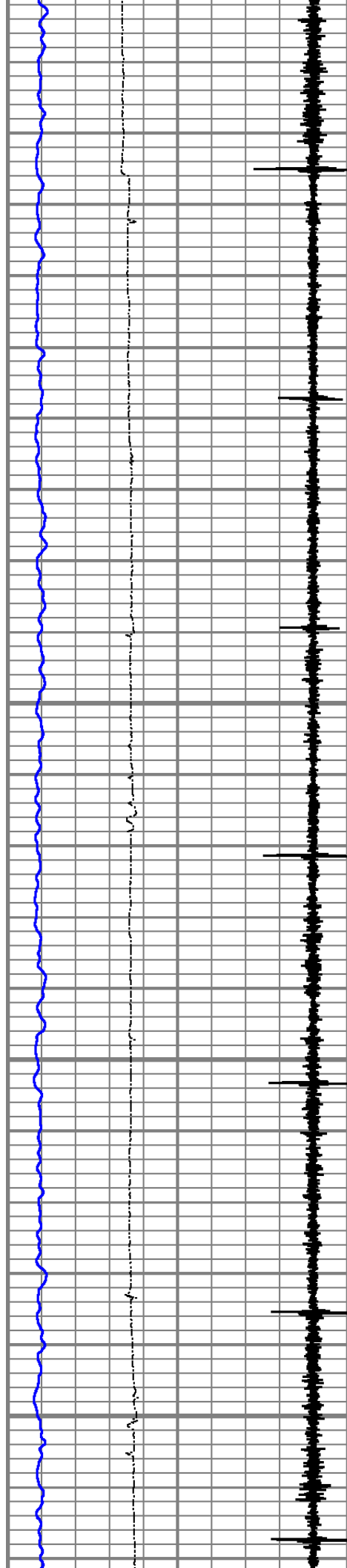
RUN # 1

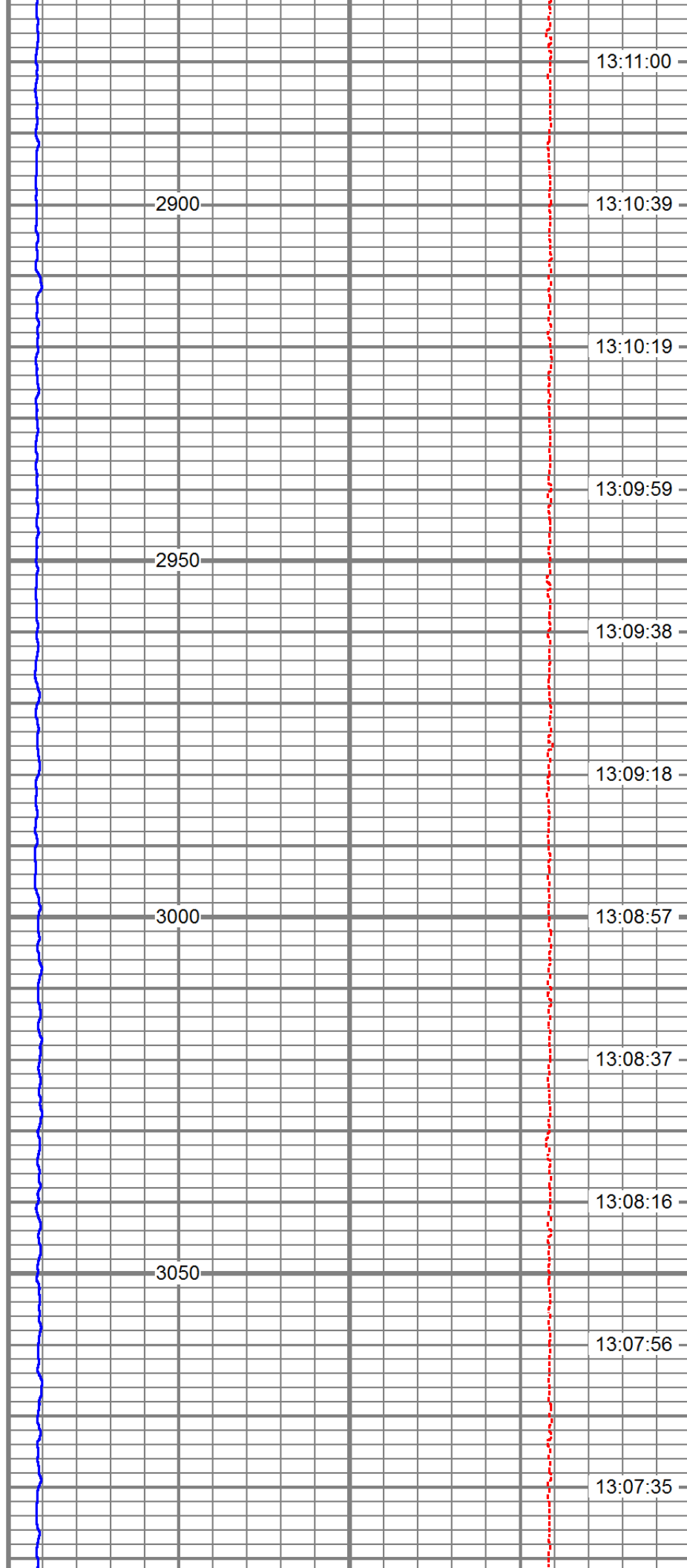
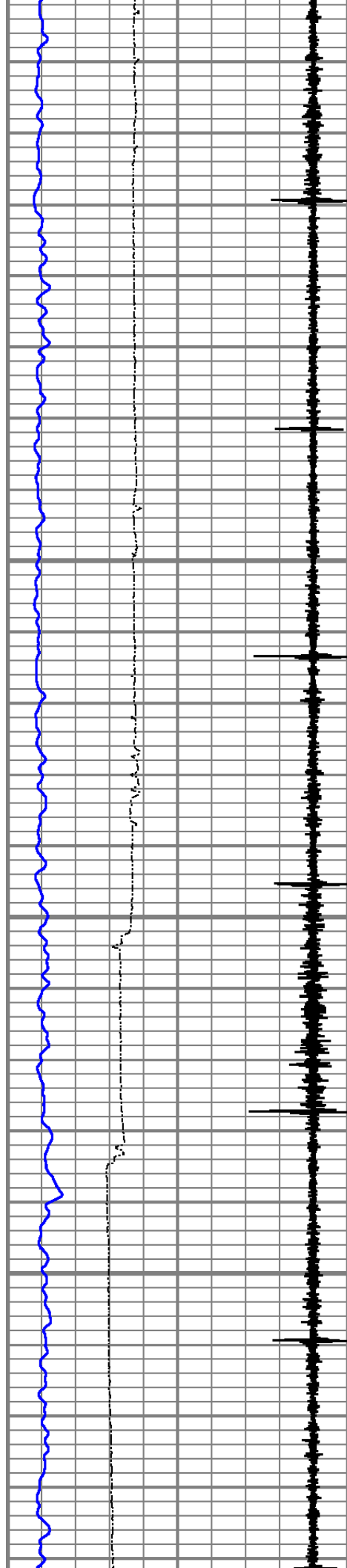
PRE SURVEY BASE LOG
0 GPM @ 0 PSI

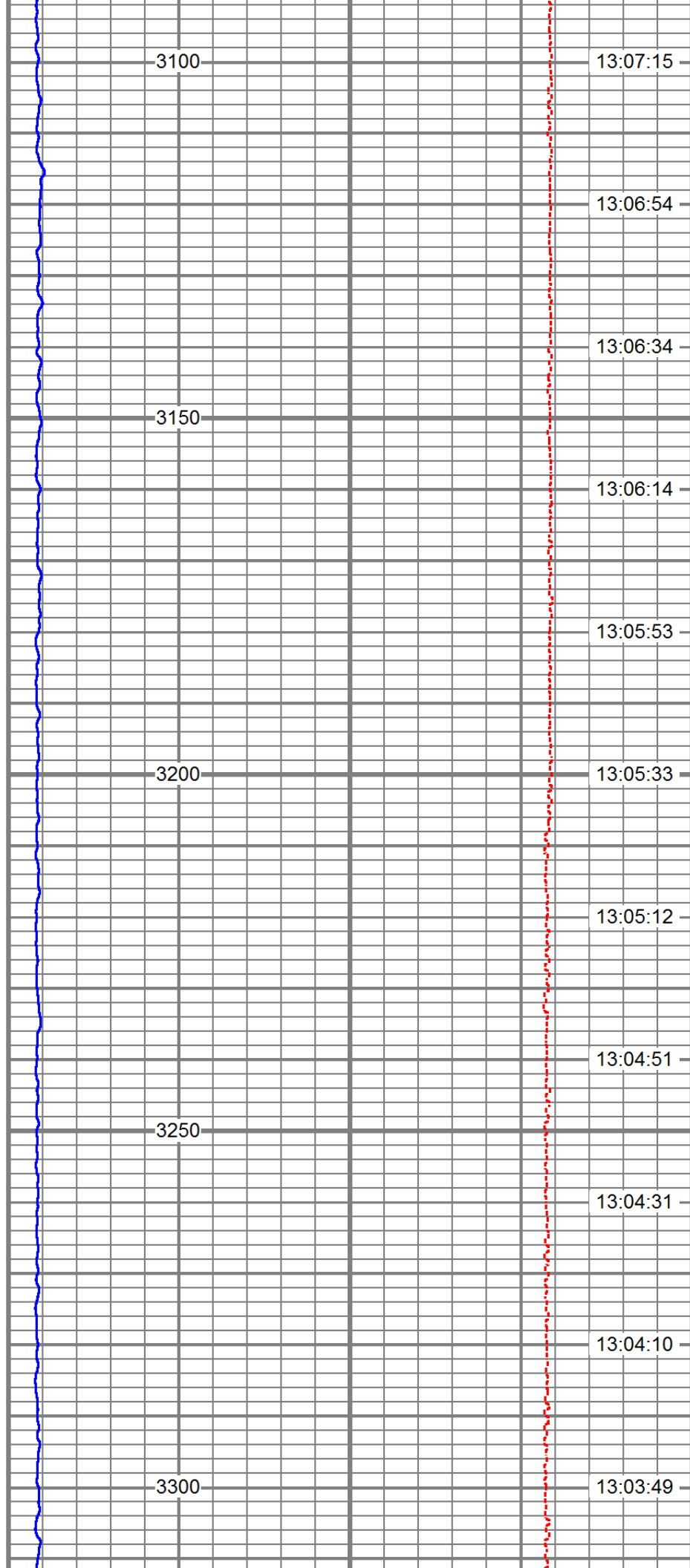
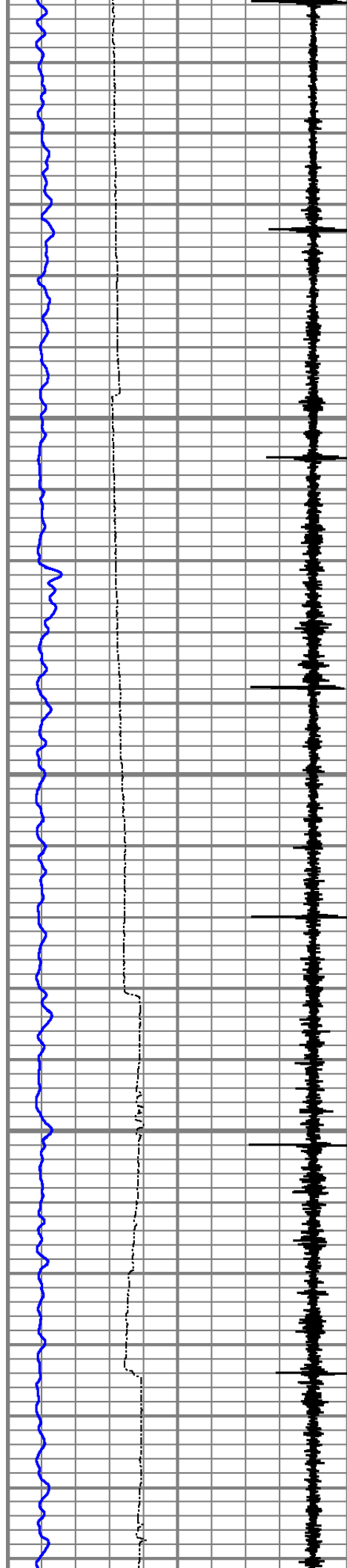
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Dataset Creation Thu Jul 12 12:52:29 2018
Charted by Depth in Feet scaled 1:240

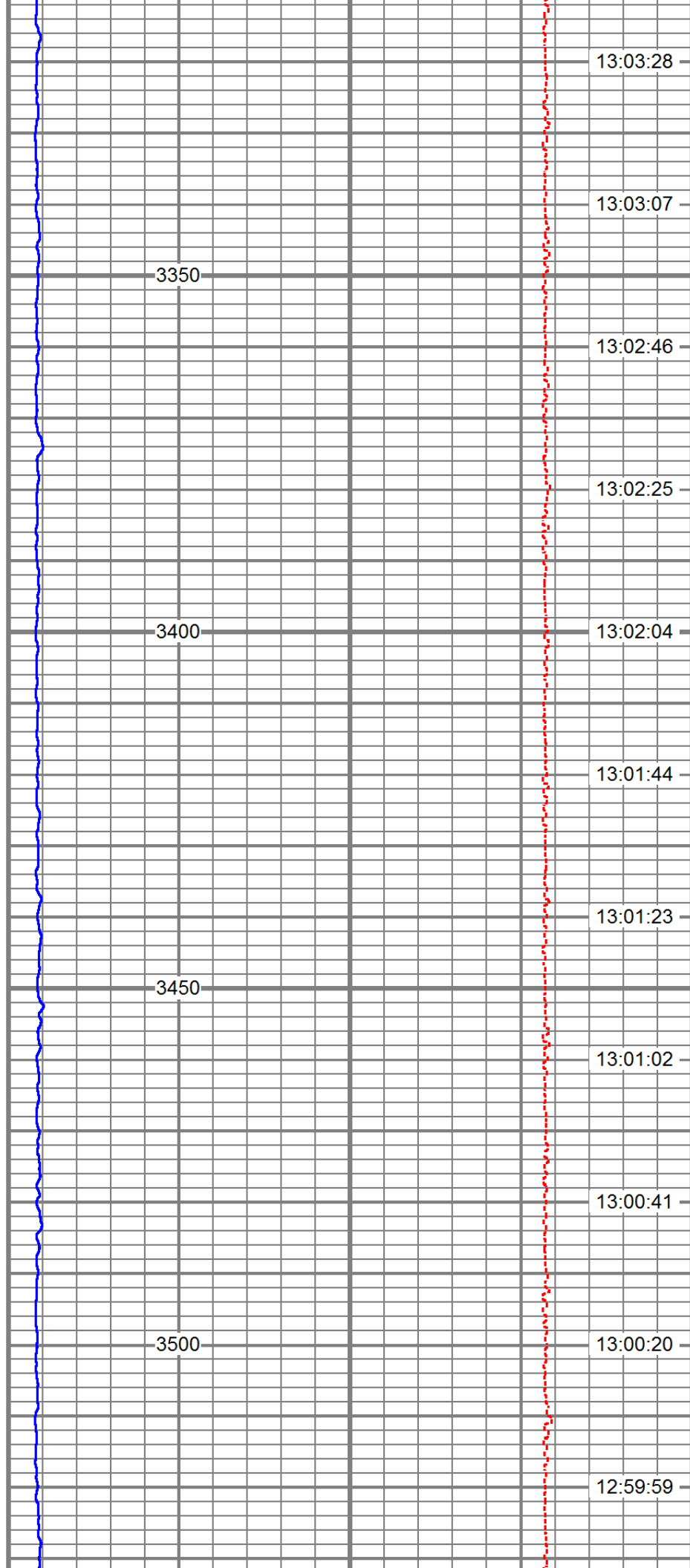
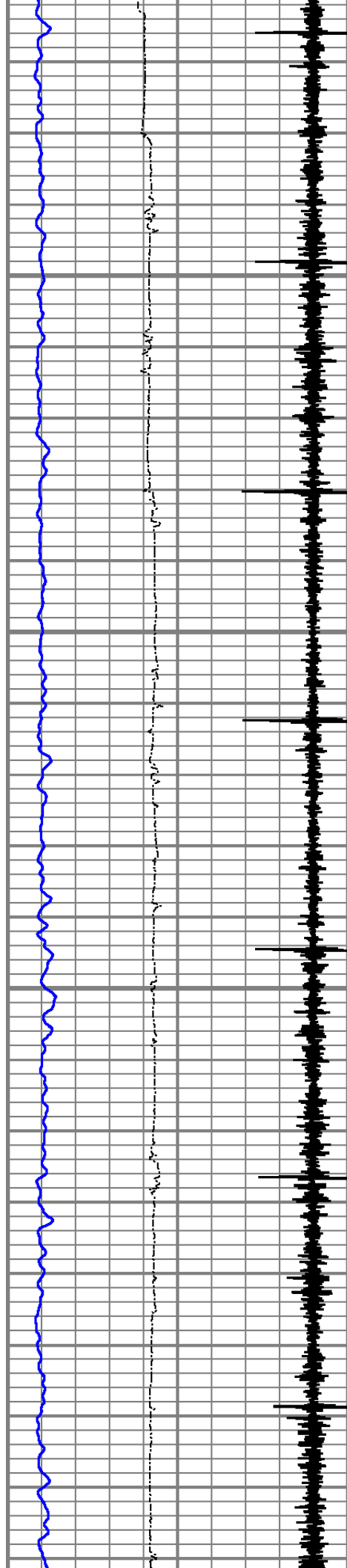
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0	UPPER DET. (GAPI)	100			TOD (sec)

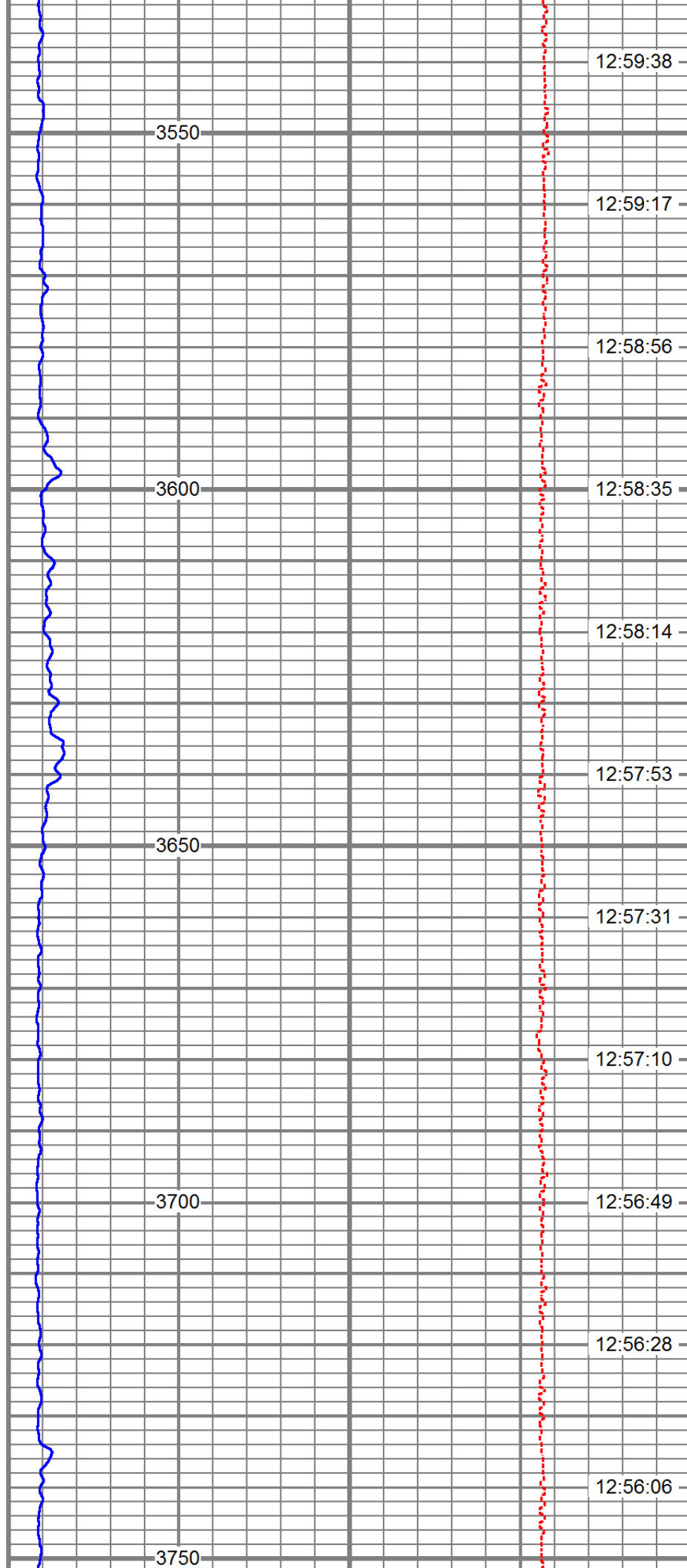
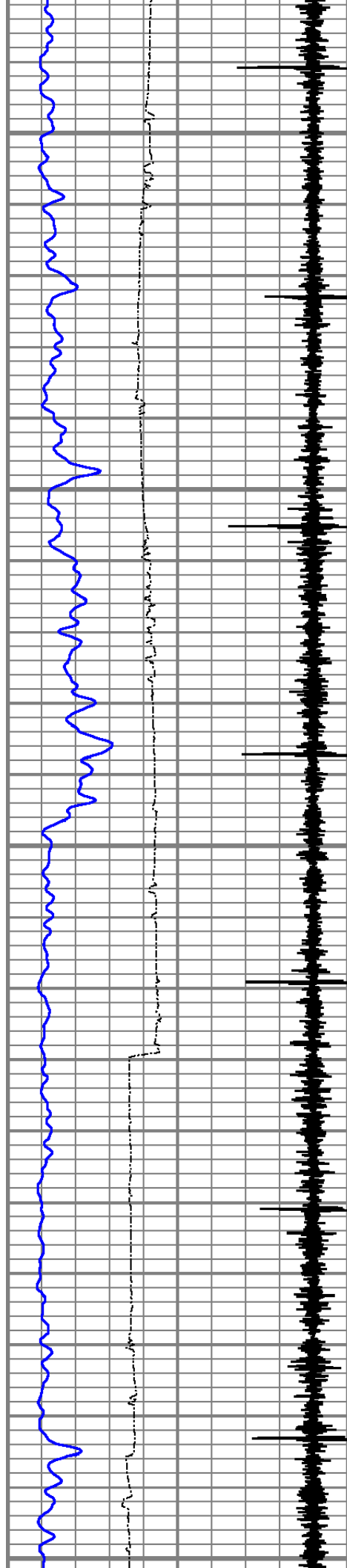


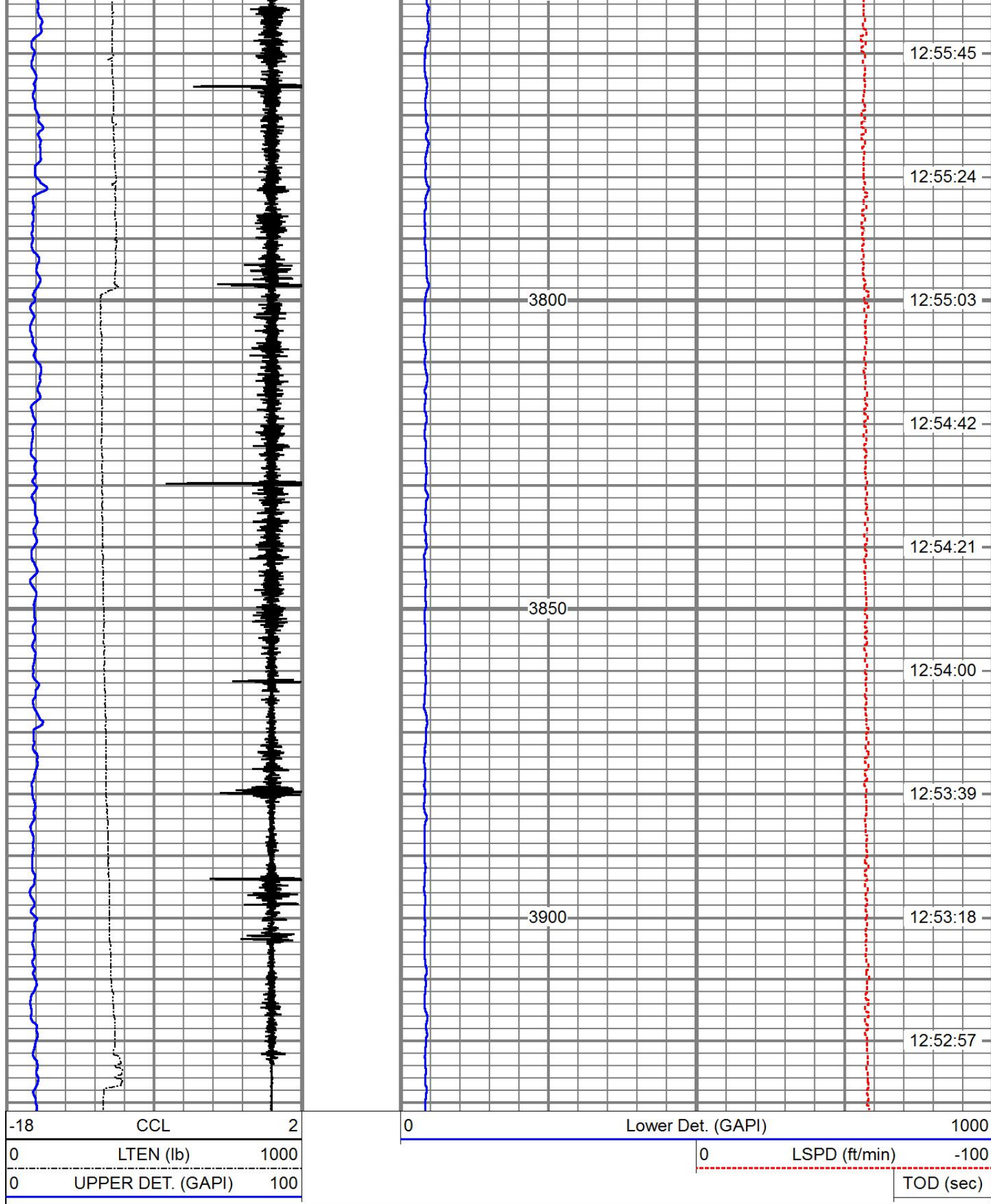






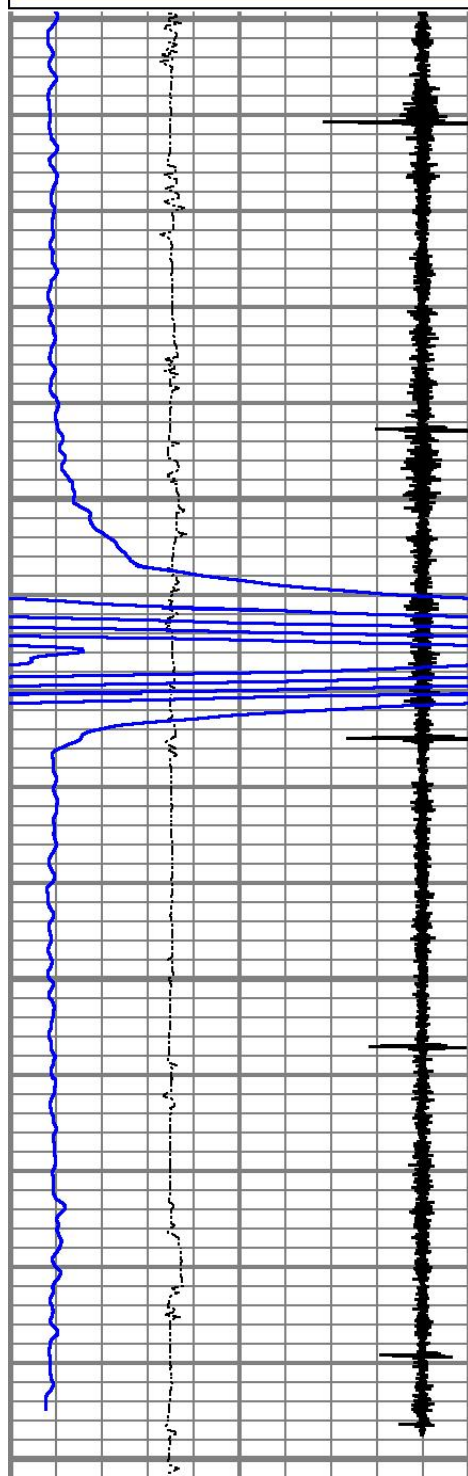






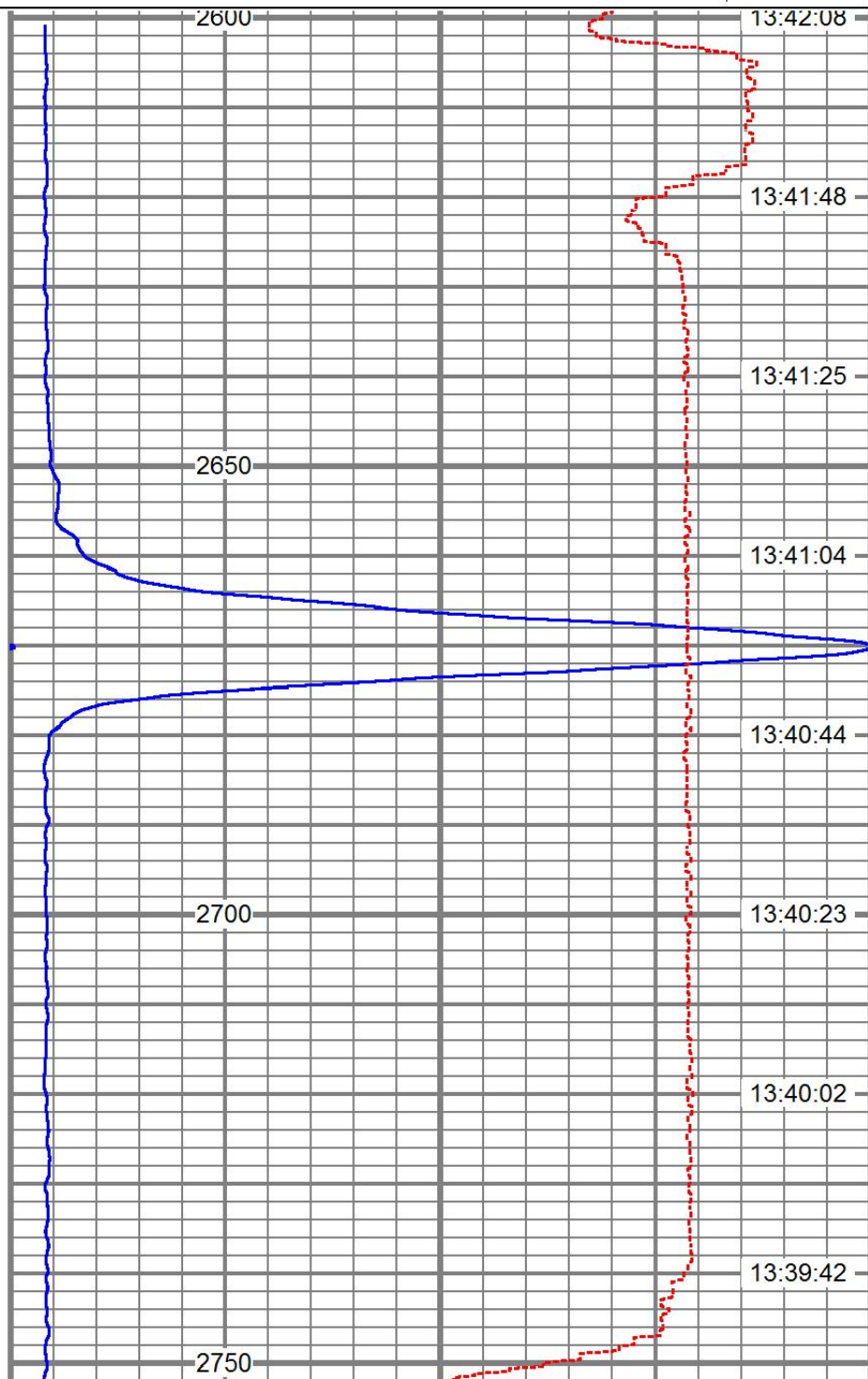
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0	UPPER DET. (GAPI)	100



-18	CCL	2
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0	UPPER DET. (GAPI)	100

0	Lower Det. (GAPI)	1000
0	LSPD (ft/min)	-100
	TOD (sec)	



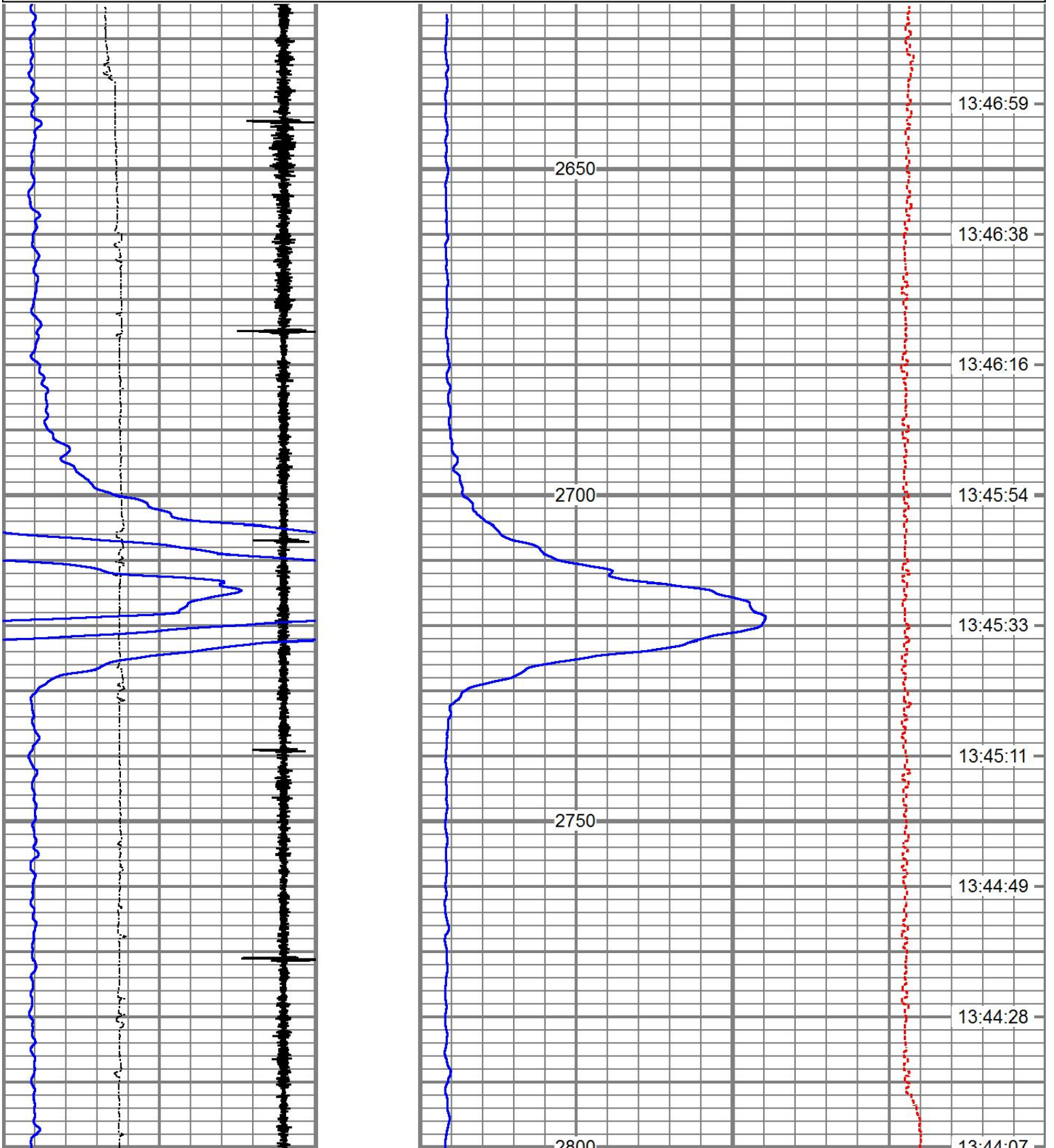
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	TOD (sec)	

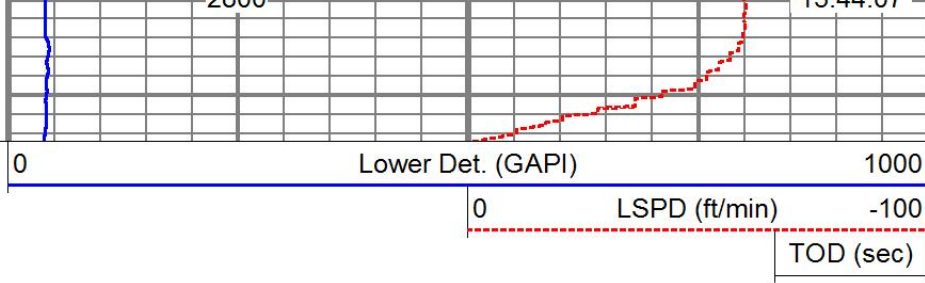
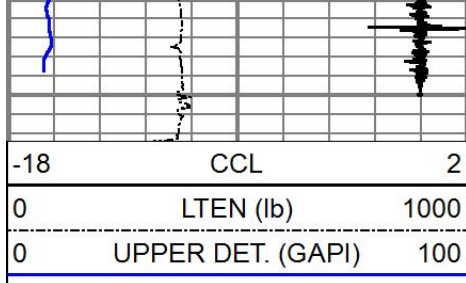


RUN # 3

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Dataset Pathname slug1/pass2
Presentation Format tracergw
Dataset Creation Thu Jul 12 13:43:35 2018
Charted by Depth in Feet scaled 1:240

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0	UPPER DET. (GAPI)	100			TOD (sec)

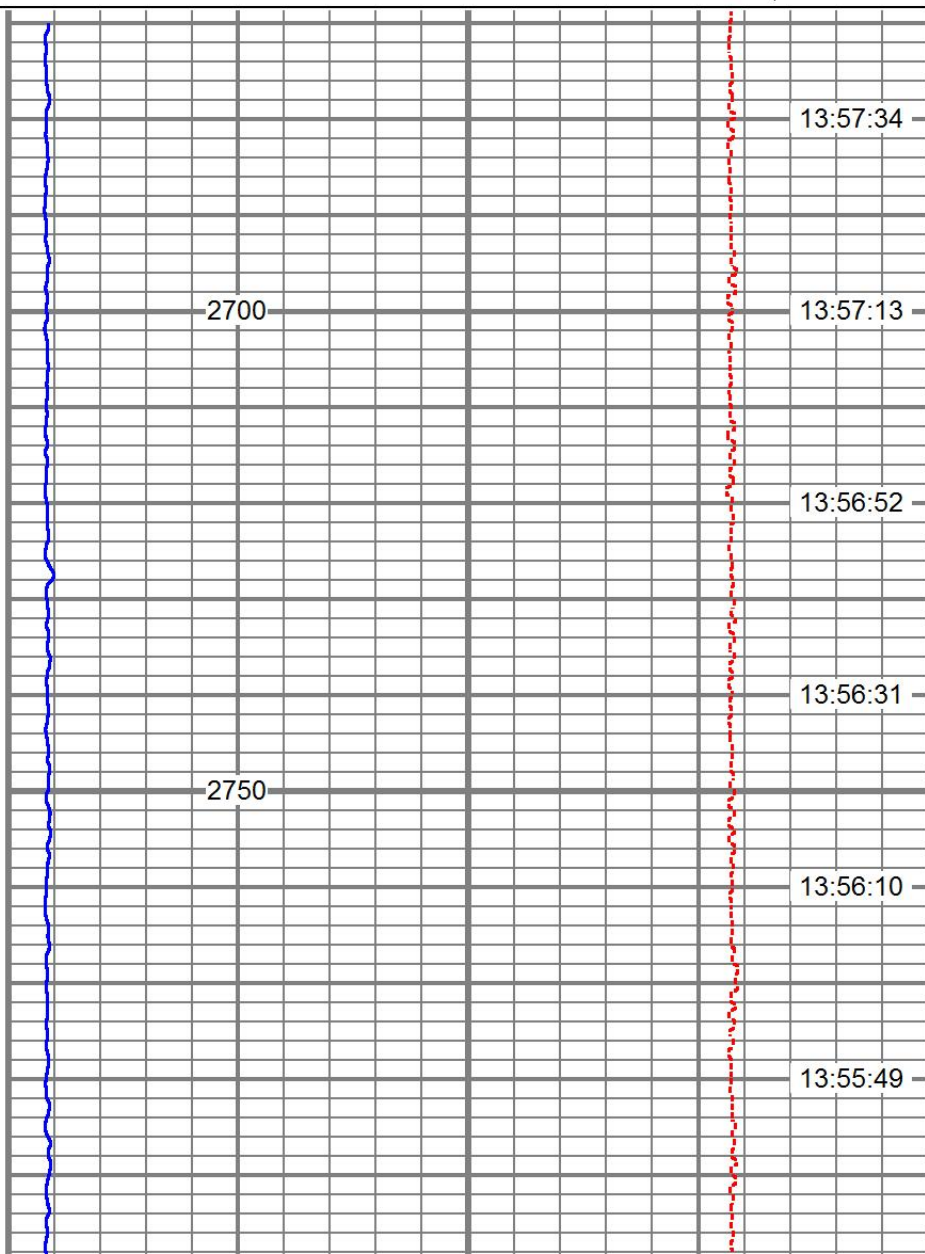
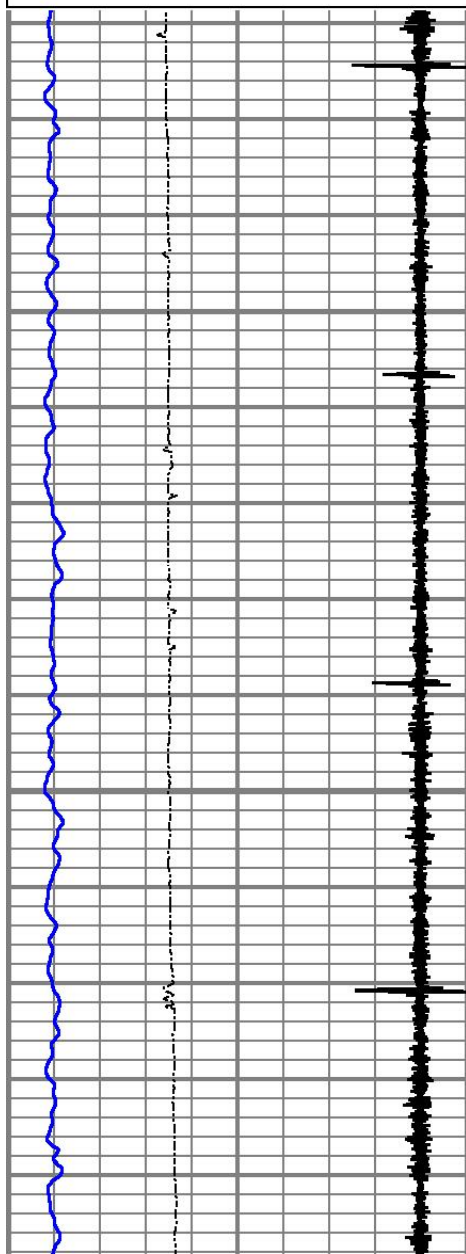
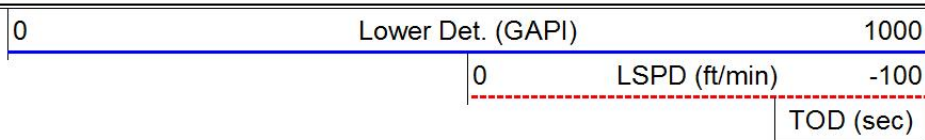
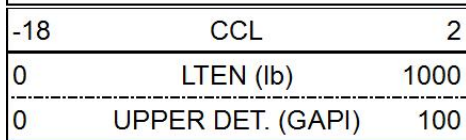


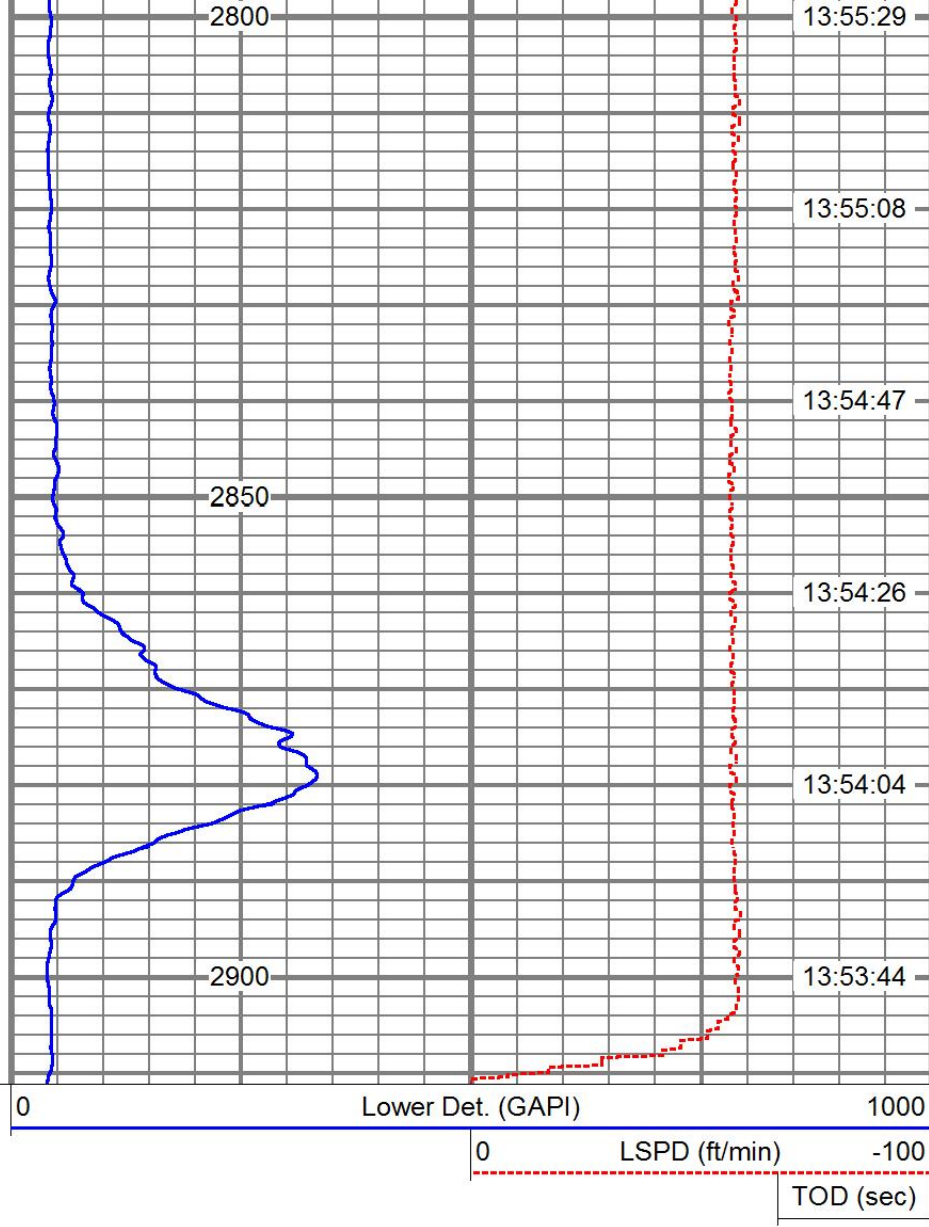
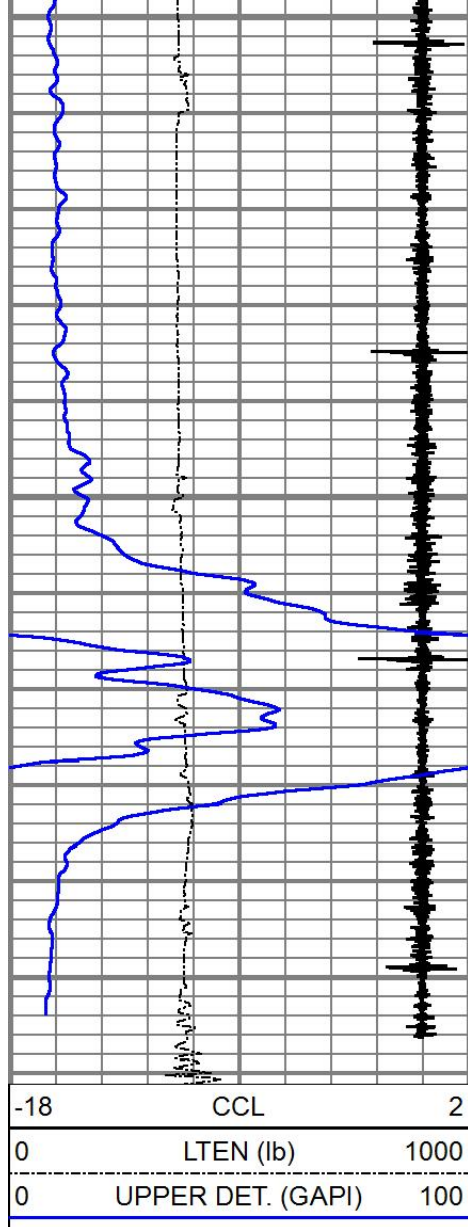


RUN # 4

SLUG # 1 CHASE # 3
20 GPM @ 0 PSI

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Presentation Format tracergw
Dataset Creation Thu Jul 12 13:53:29 2018
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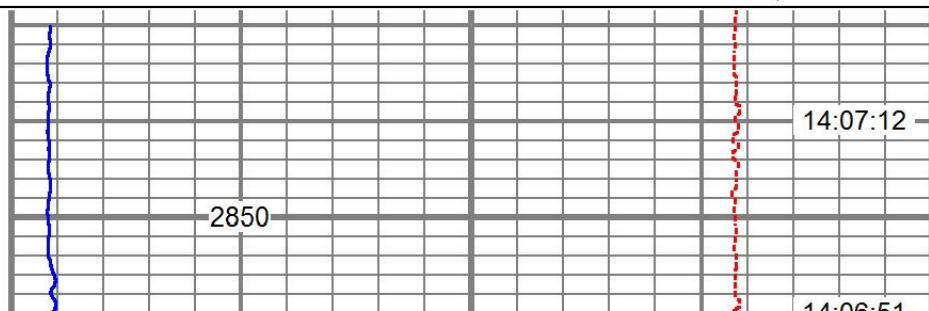
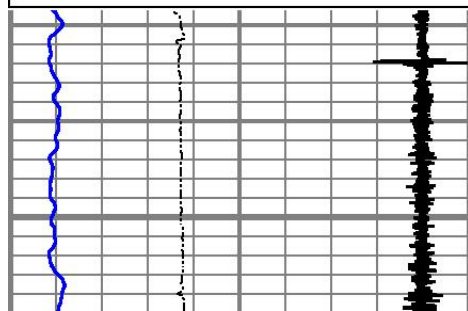
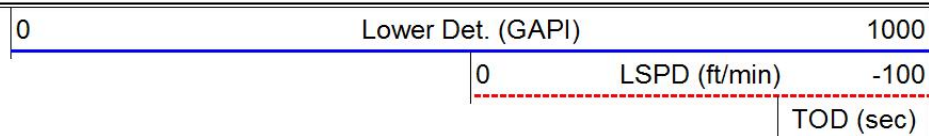
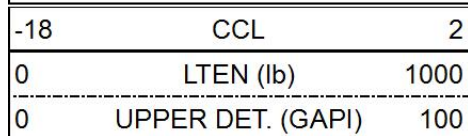


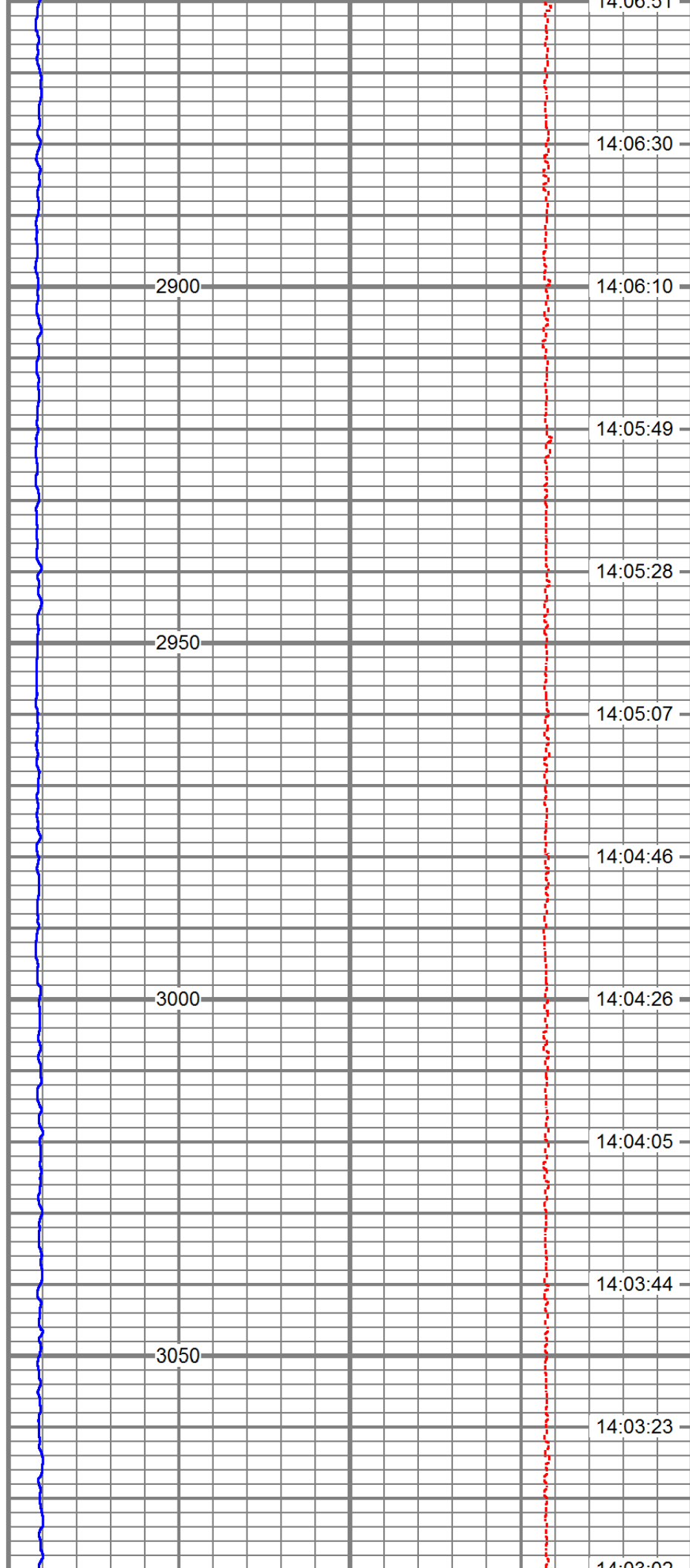
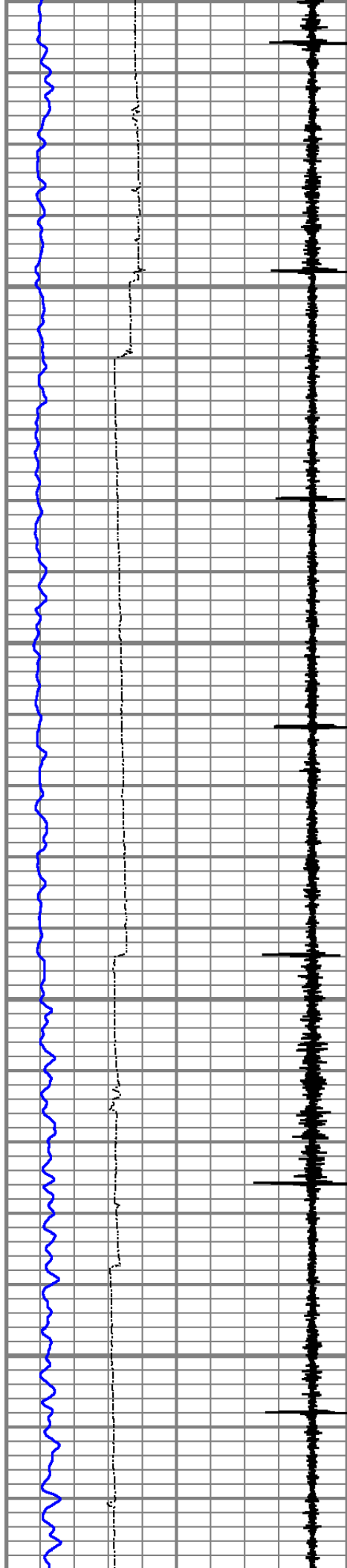


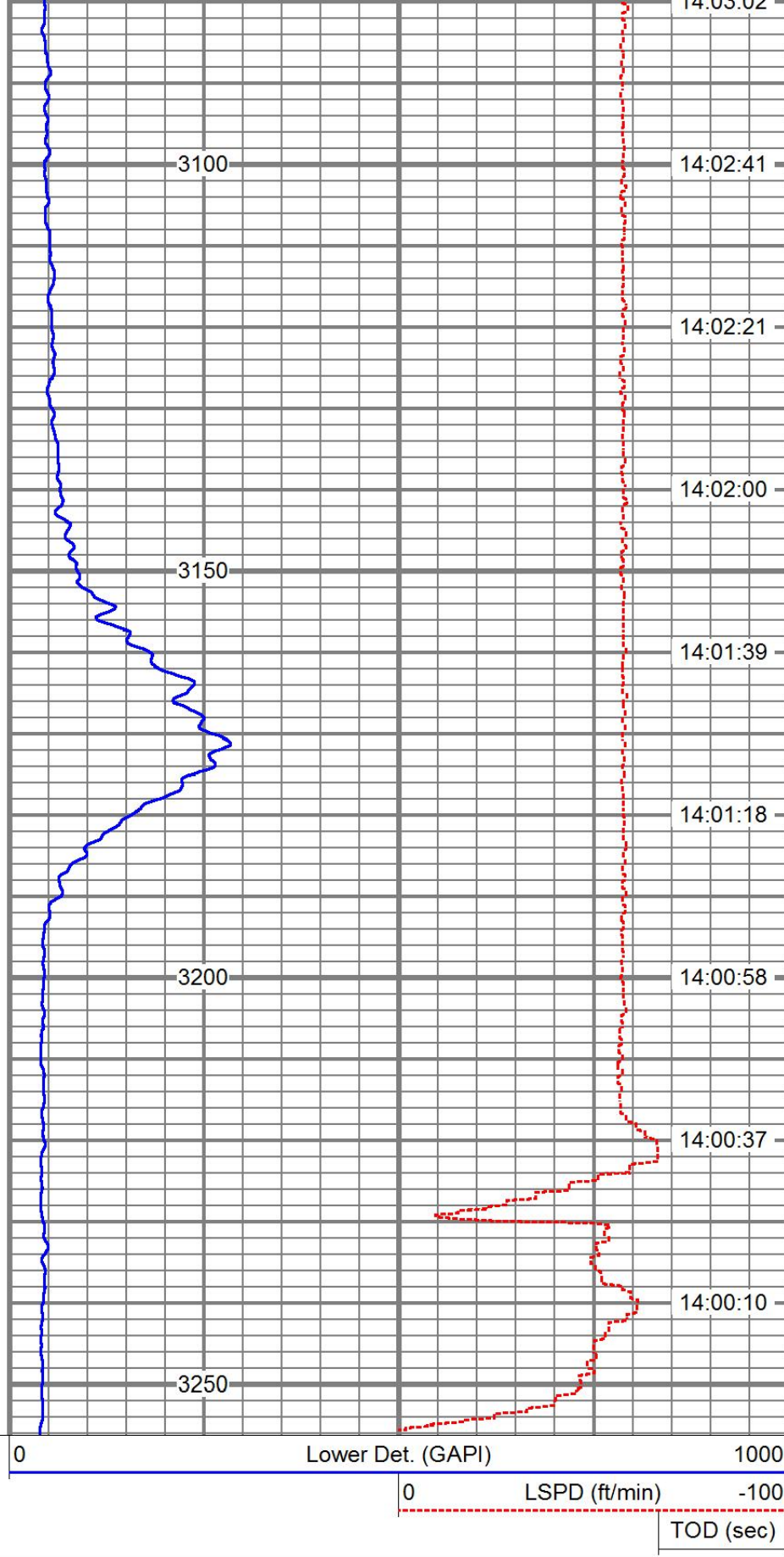
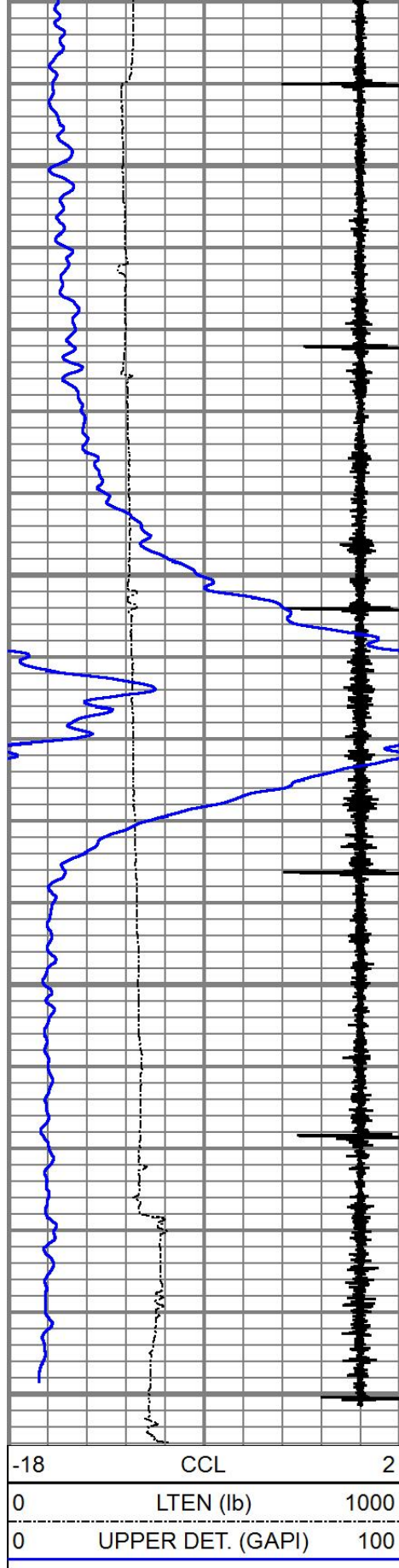
RUN # 5

SLUG # 1 CHASE # 4
15 GPM @ 5 PSI

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Dataset Pathname slug1/pass4
Presentation Format tracergw
Dataset Creation Thu Jul 12 13:59:47 2018
Charted by Depth in Feet scaled 1:240



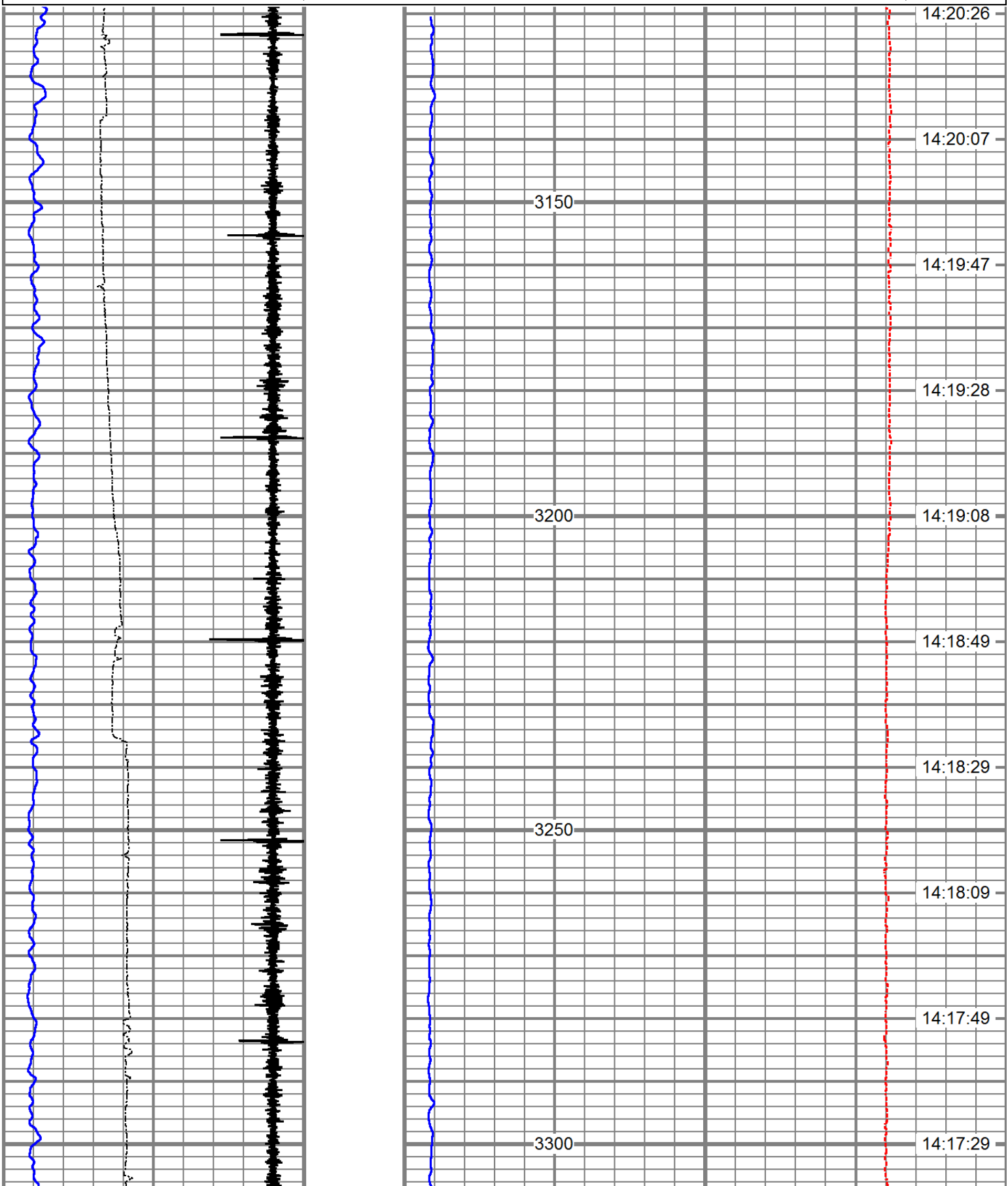


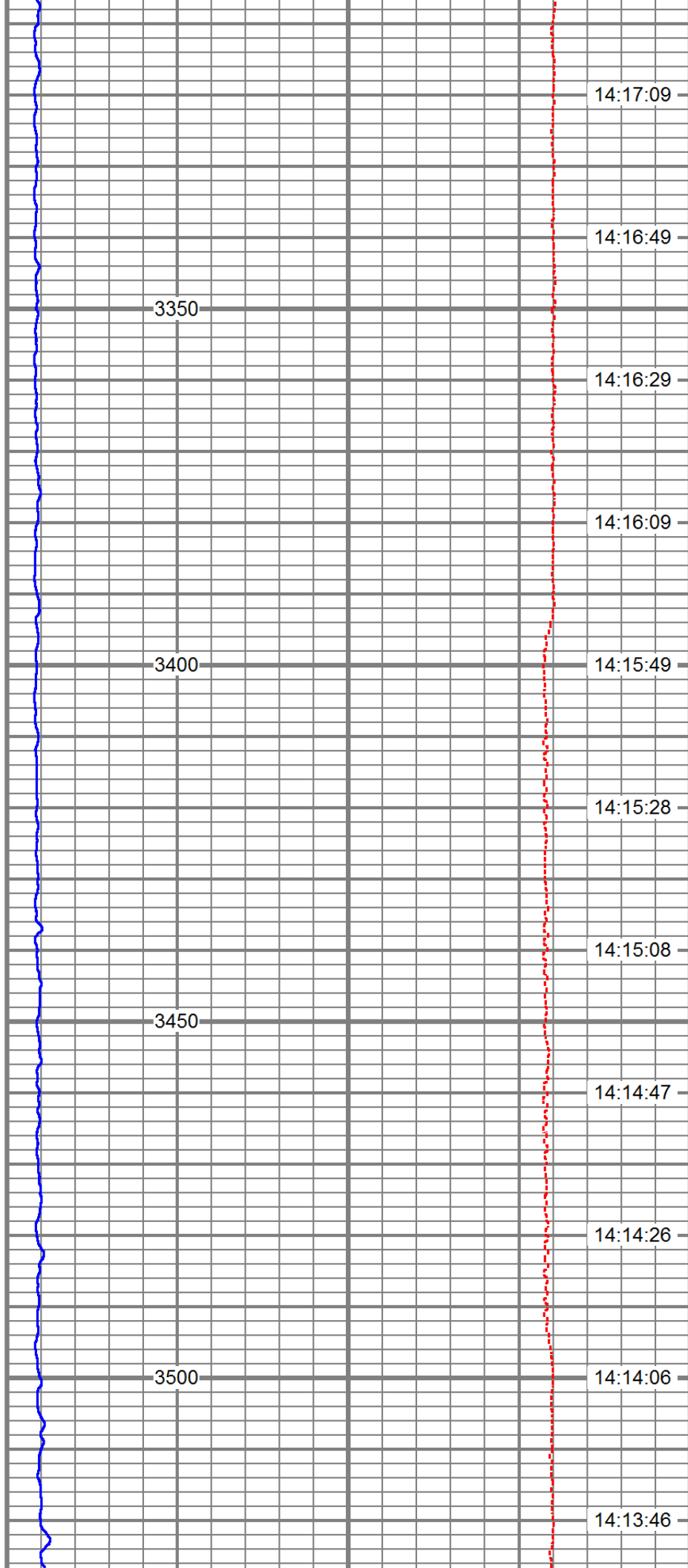
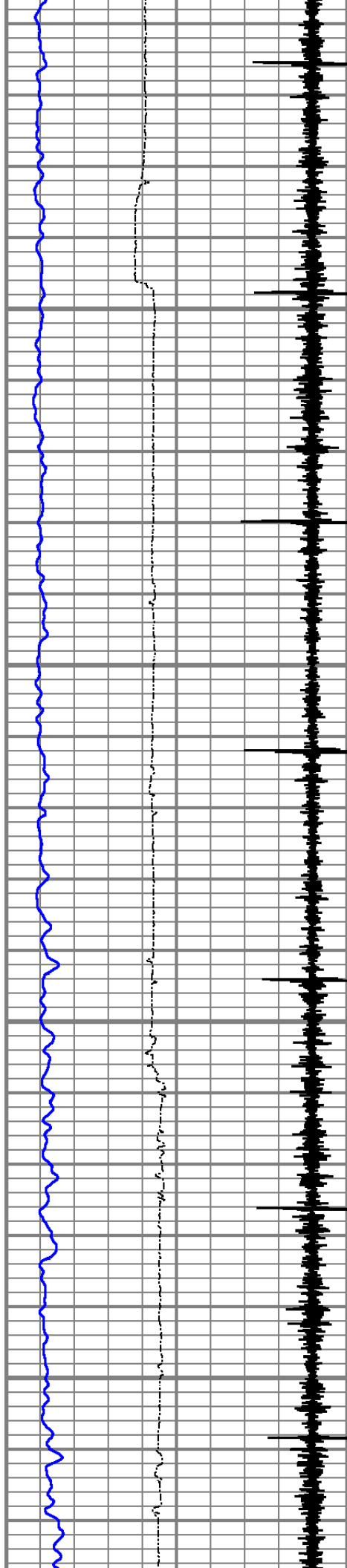


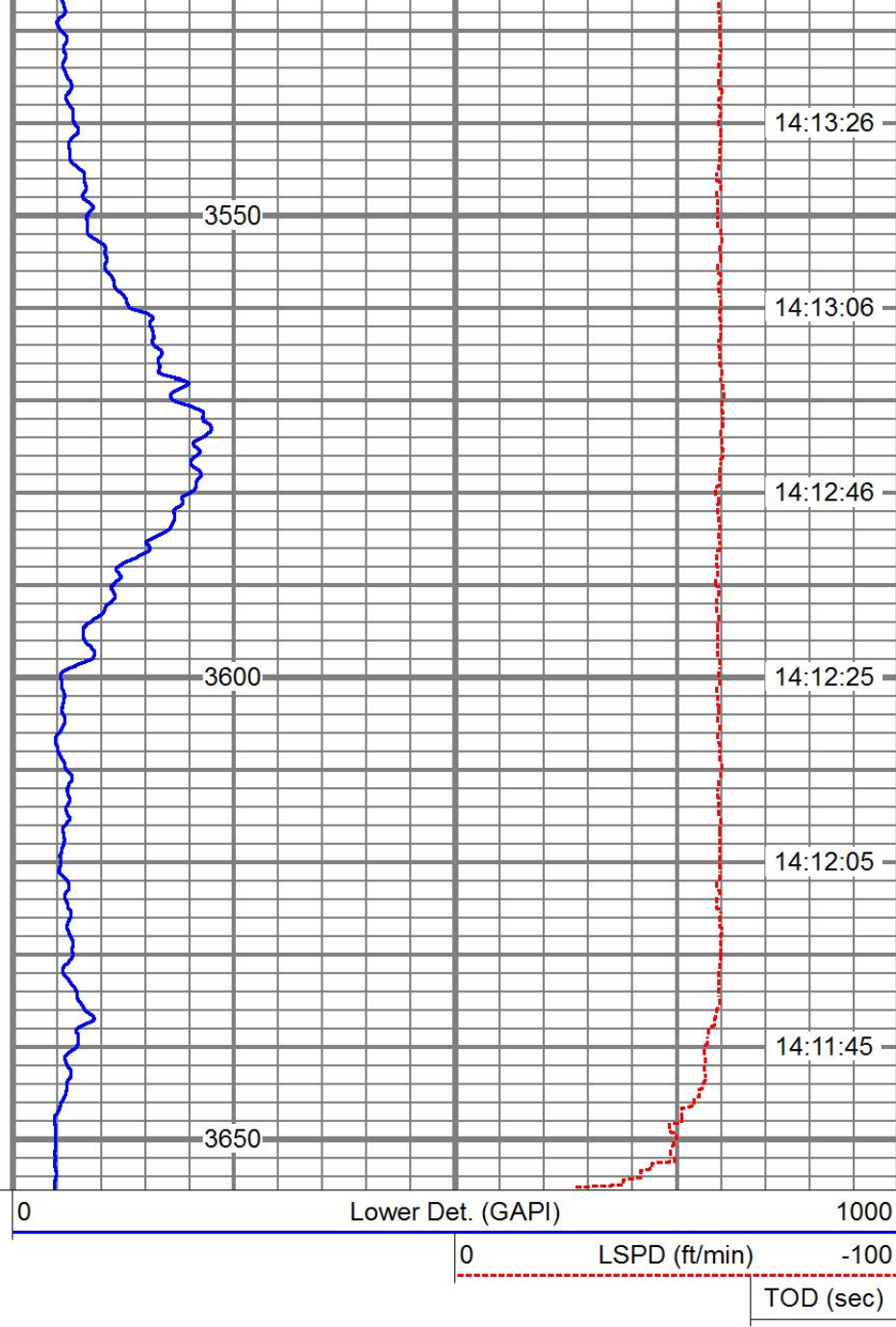
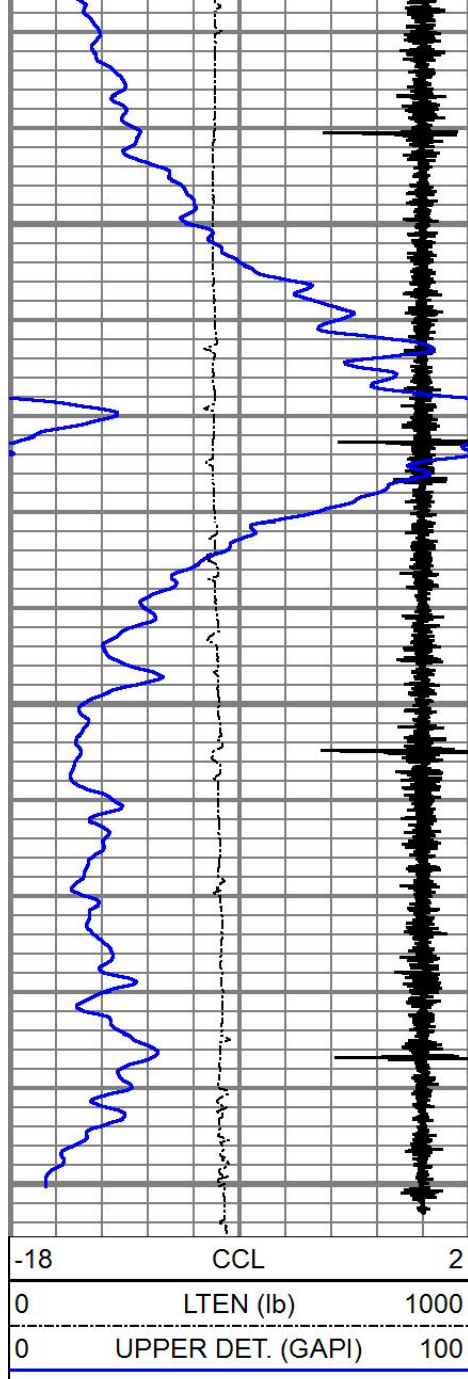
RUN # 6

SLUG # 1 CHASE # 5
15 GPM @ 5 PSI

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0	UPPER DET. (GAPI)	100			TOD (sec)



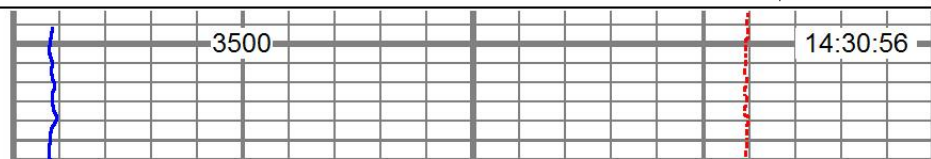
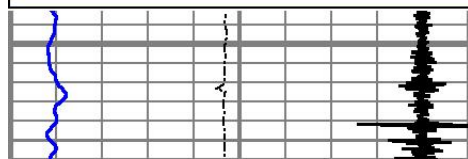
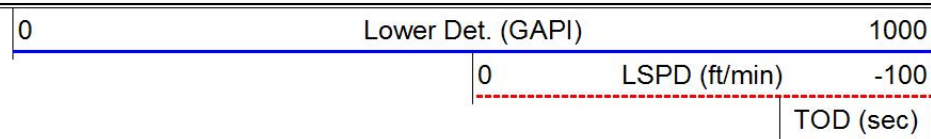
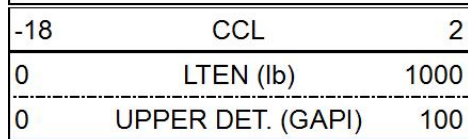


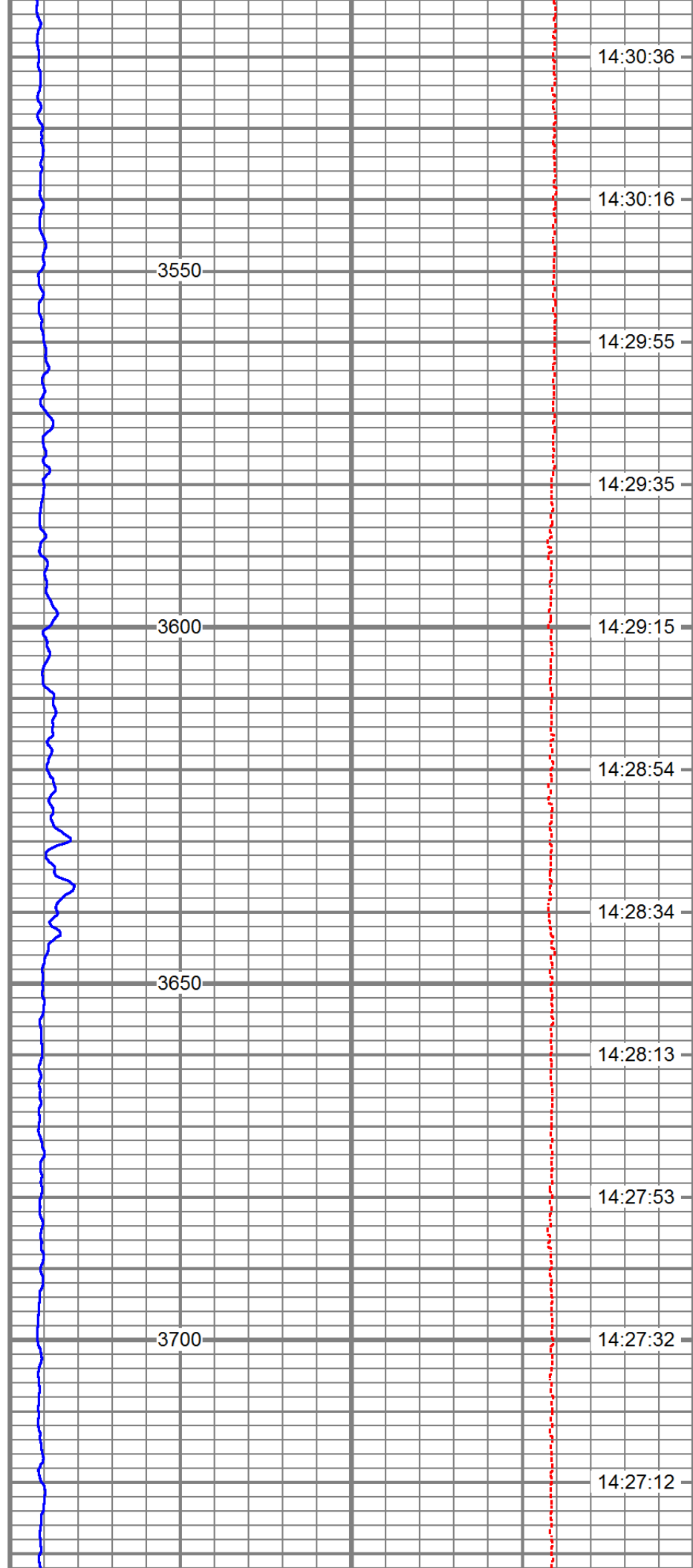
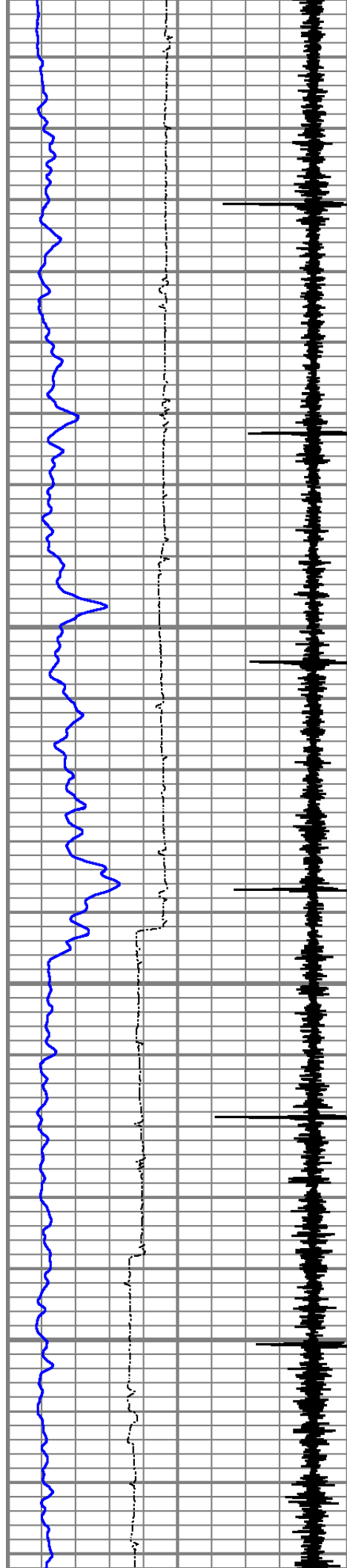


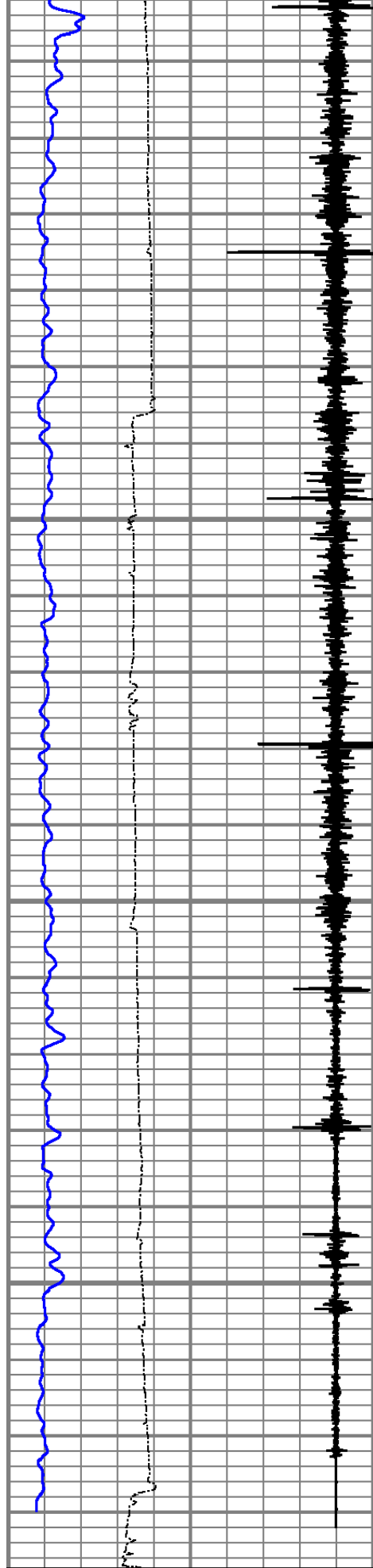
RUN # 7

SLUG # 1 CHASE # 6 DISSIPATED
15 GPM @ 5 PSI

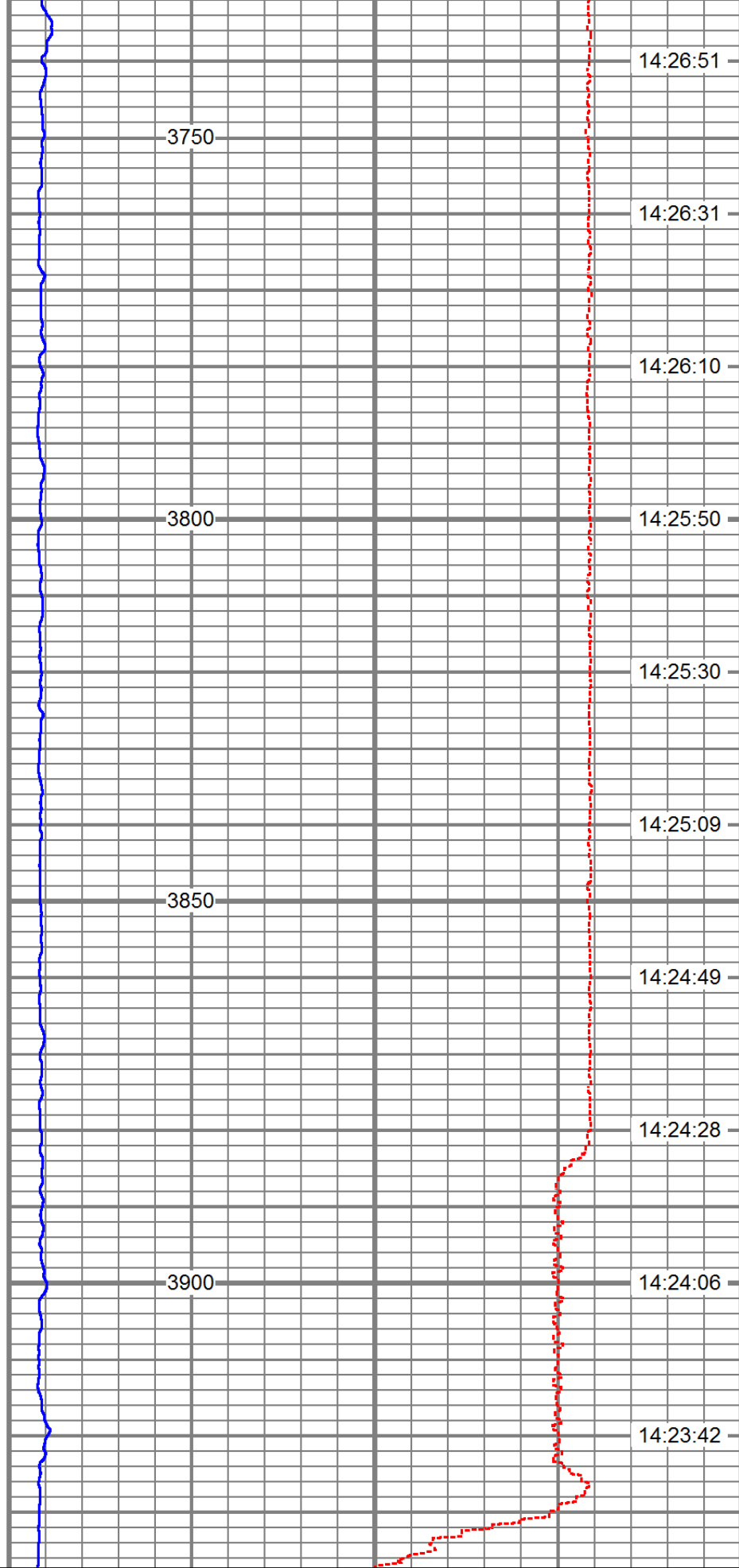
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Presentation Format tracergw
Dataset Creation Thu Jul 12 14:23:10 2018
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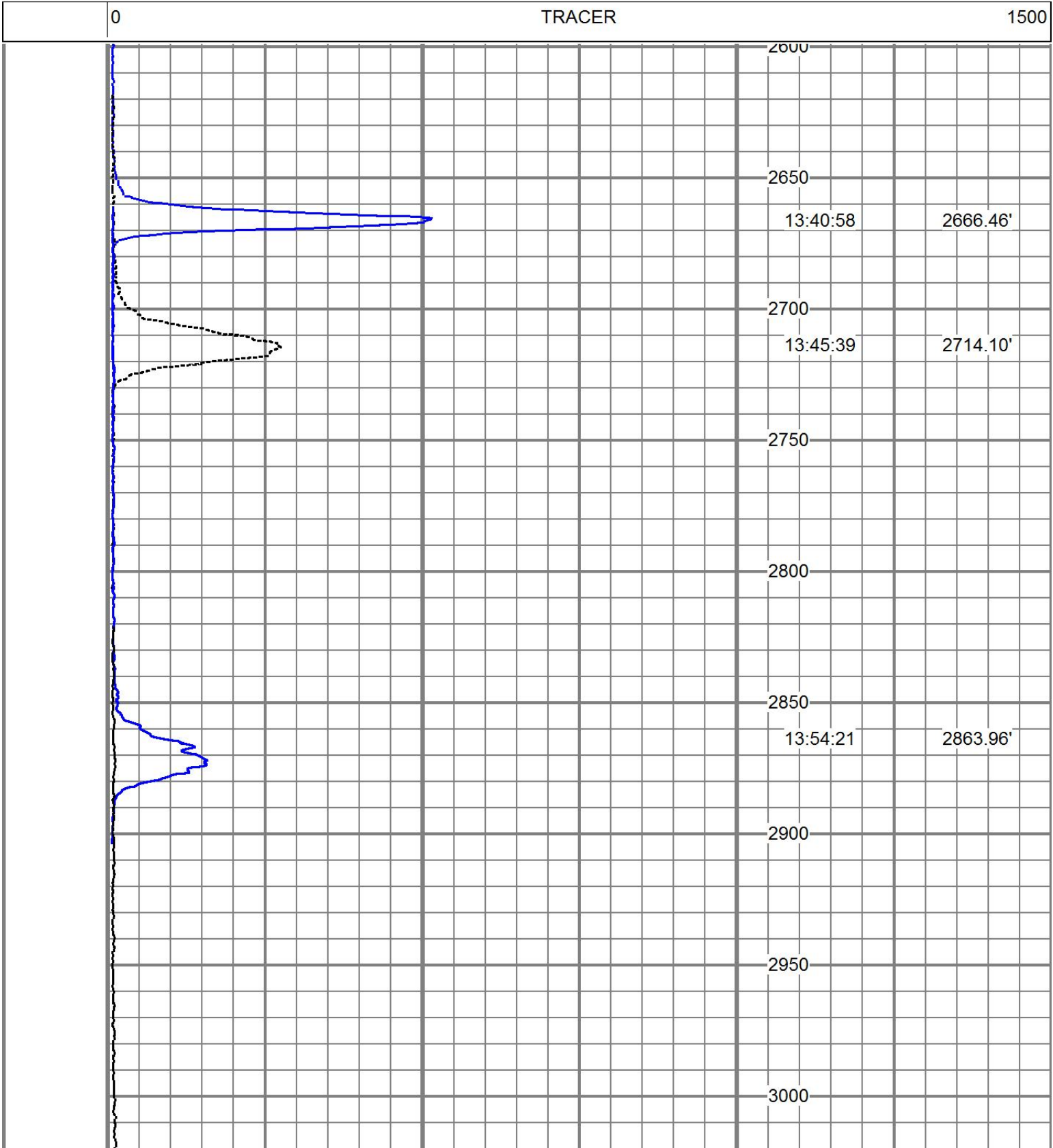
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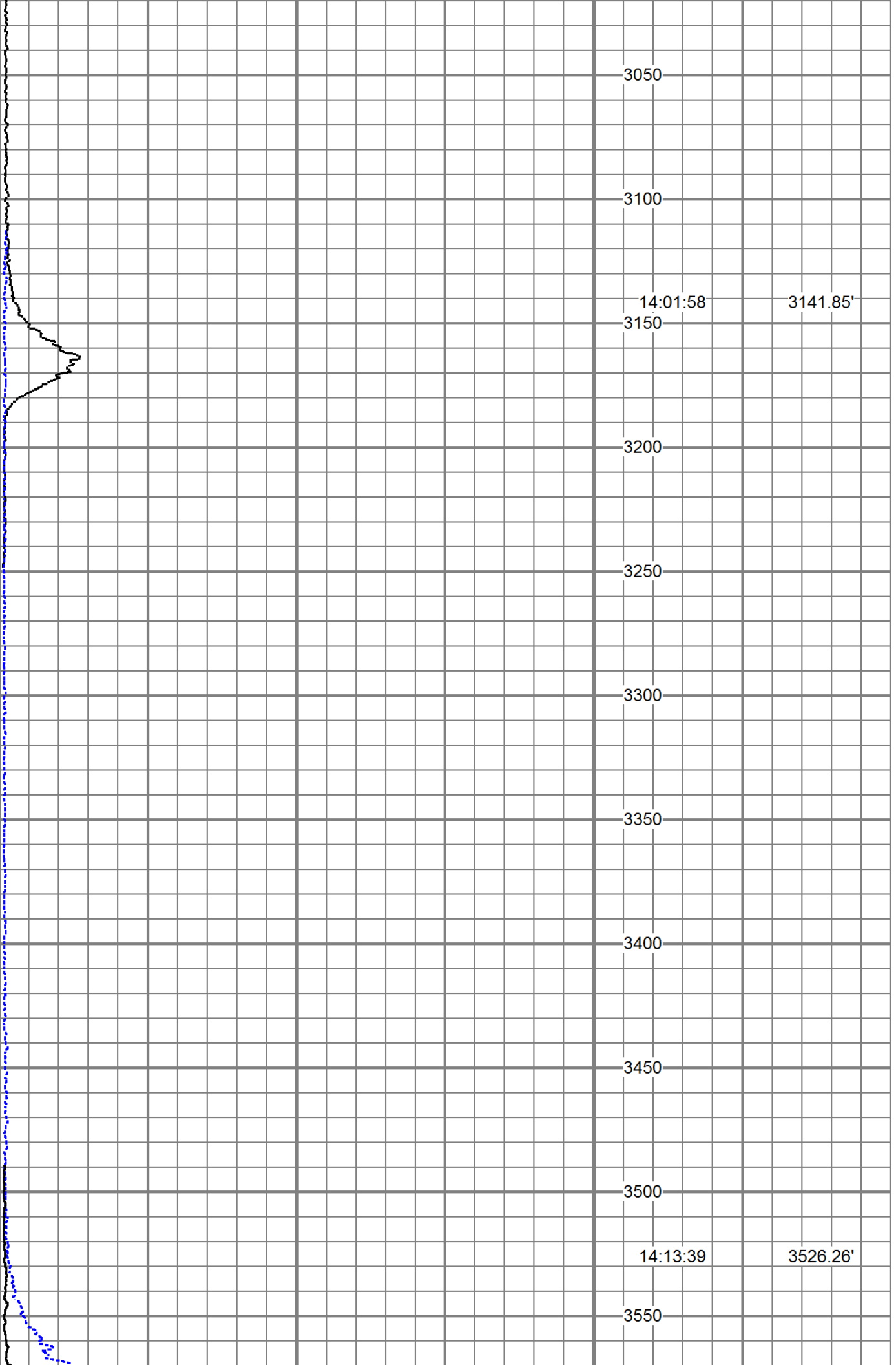


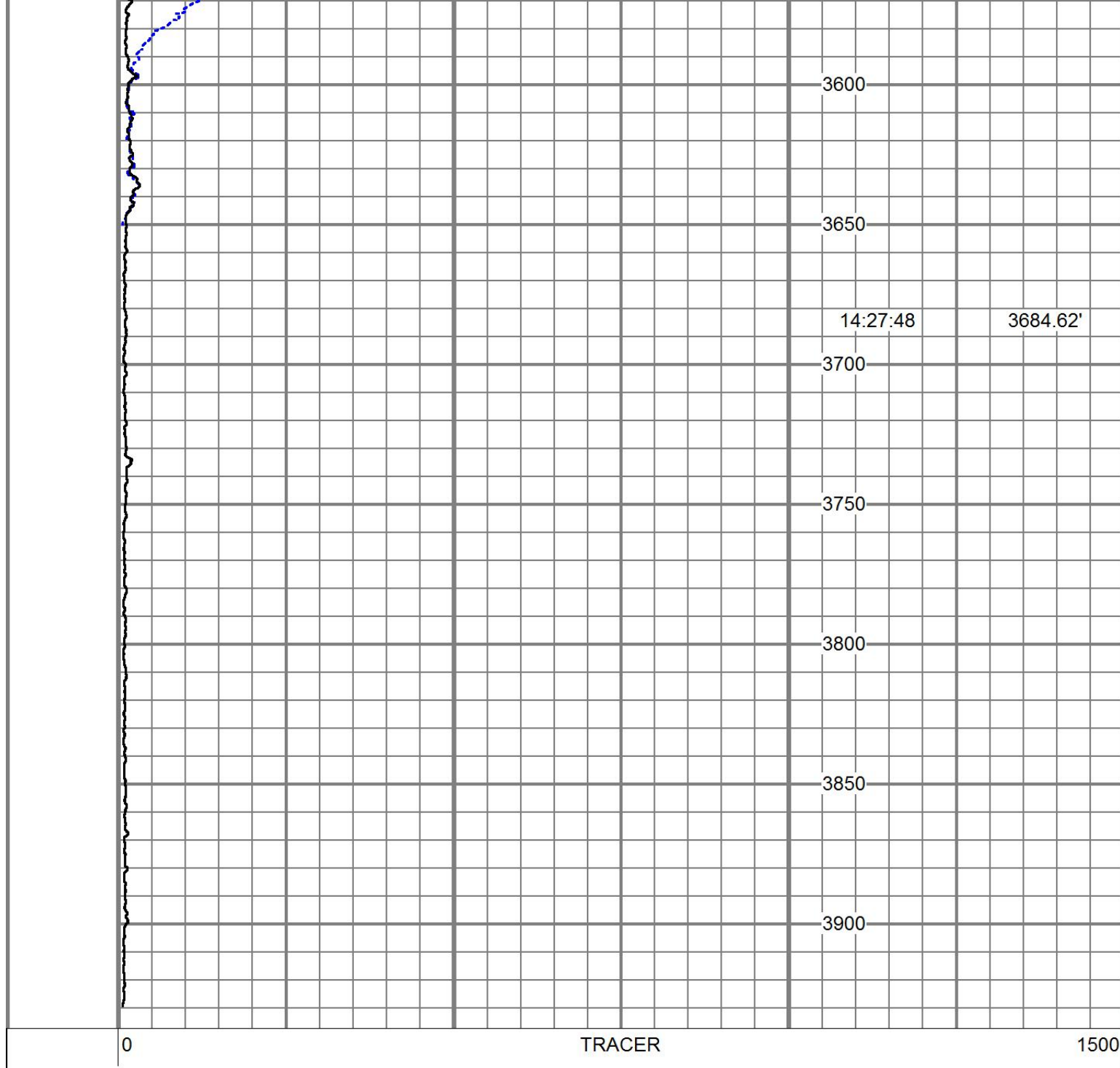
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	TOD (sec)	




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Charted by	Depth in Feet scaled 1:600









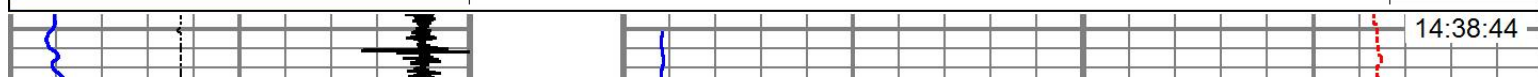
QES WIRELINE LLC

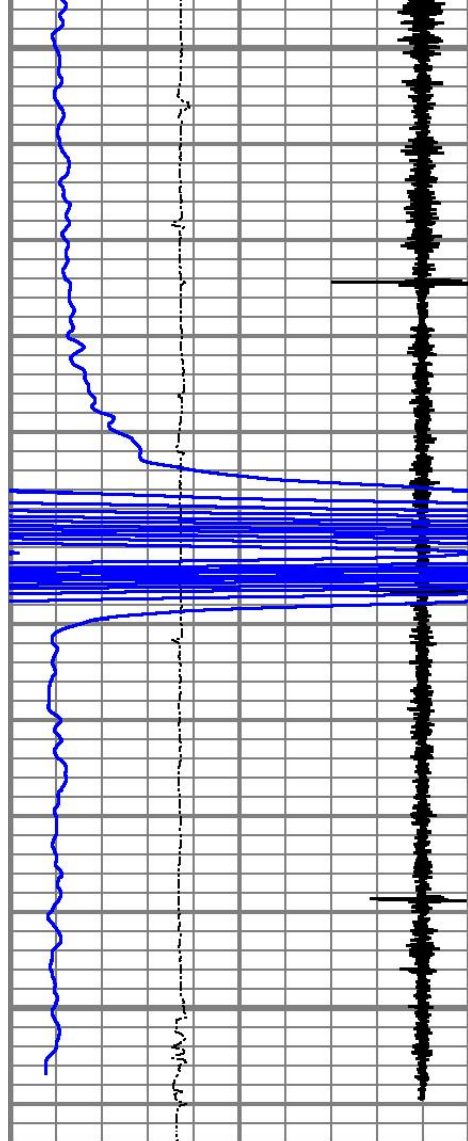
RUN # 8

SLUG # 2 CHASE # 1 EJECT @ 2650
15 GPM @ 5 PSI

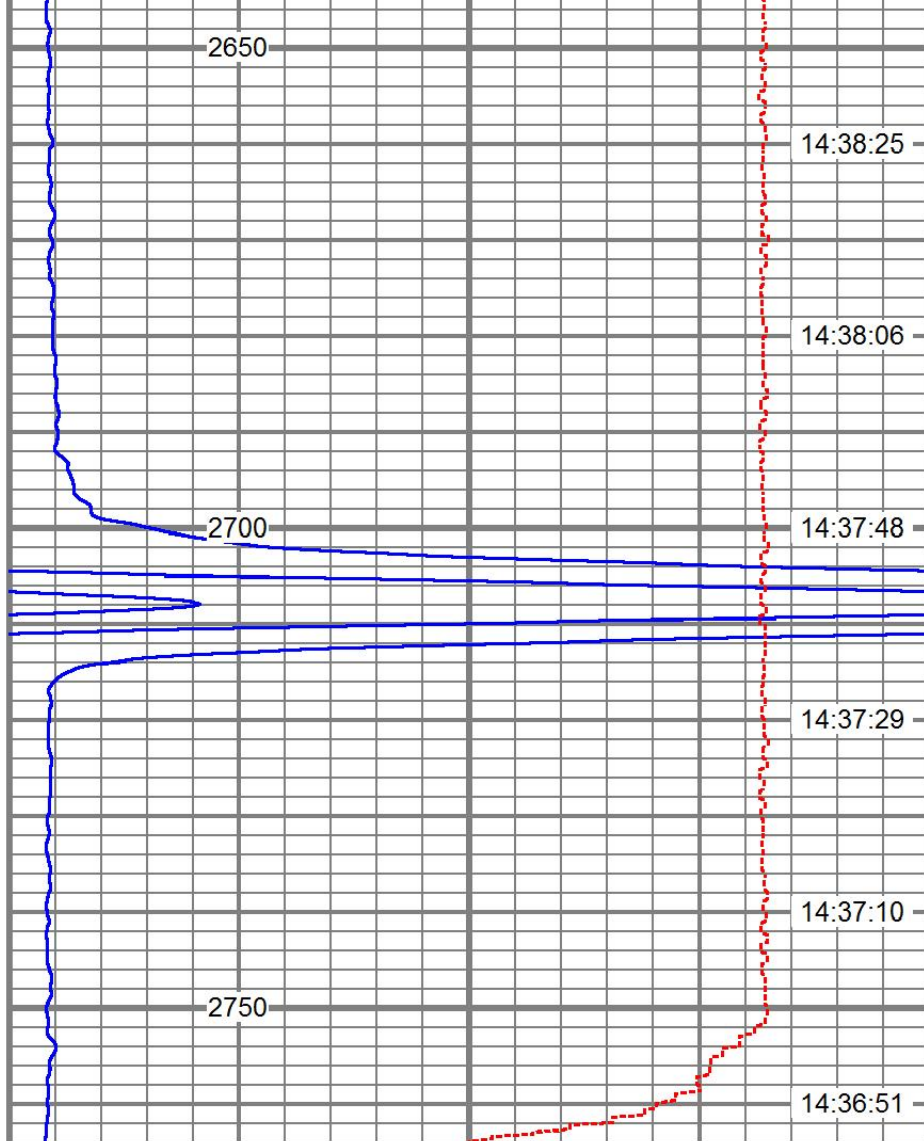
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0	UPPER DET. (GAPI)	100			TOD (sec)





-18	CCL	2
0	LTEN (lb)	1000
0	UPPER DET. (GAPI)	100



0	Lower Det. (GAPI)	1000
0	LSPD (ft/min)	-100
	TOD (sec)	



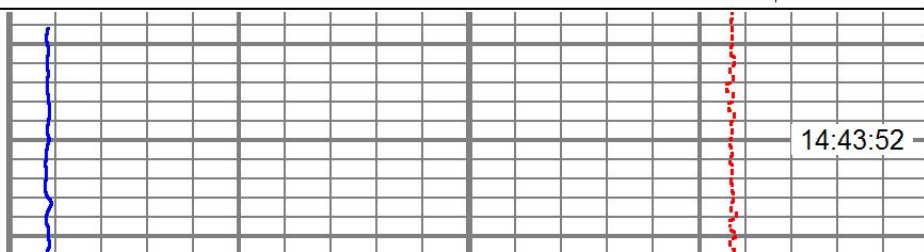
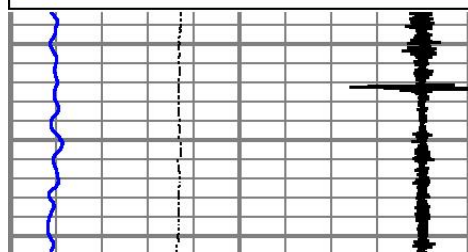
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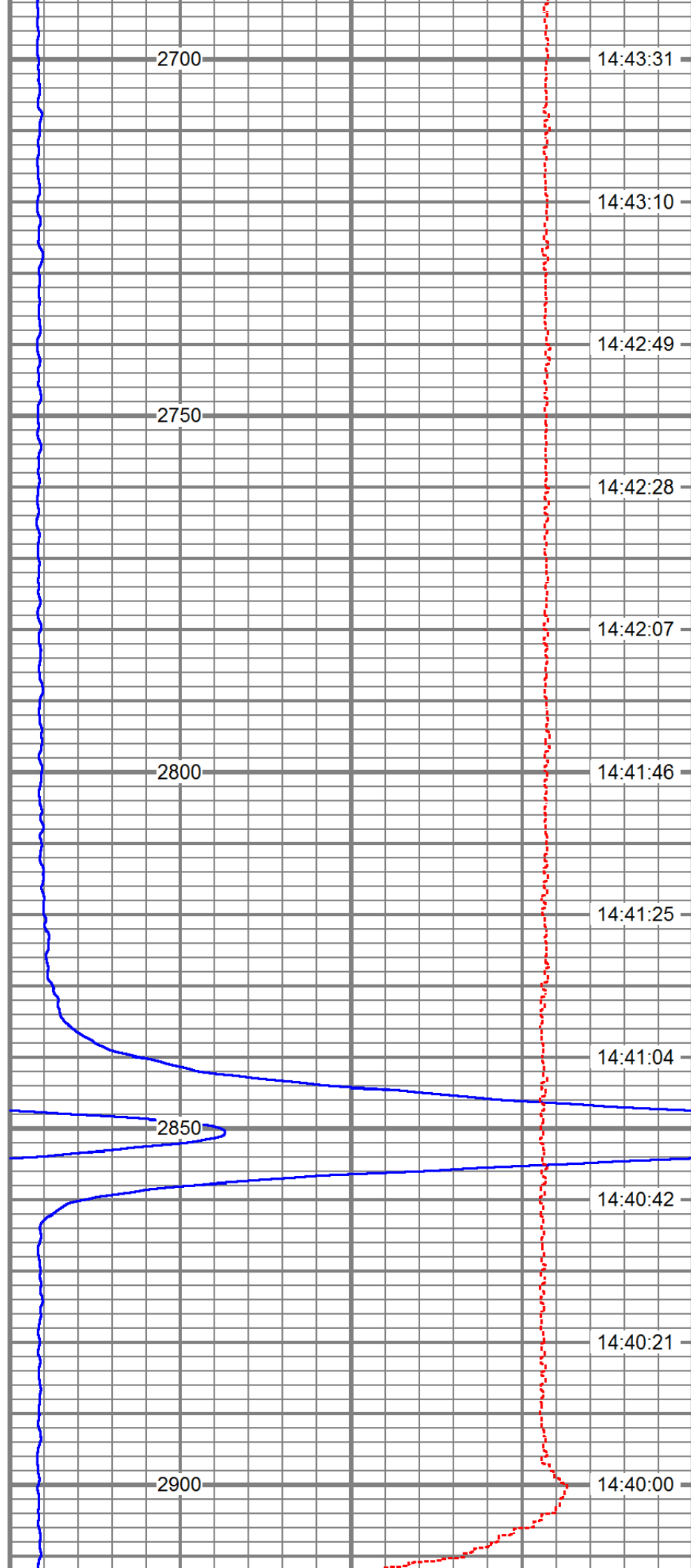
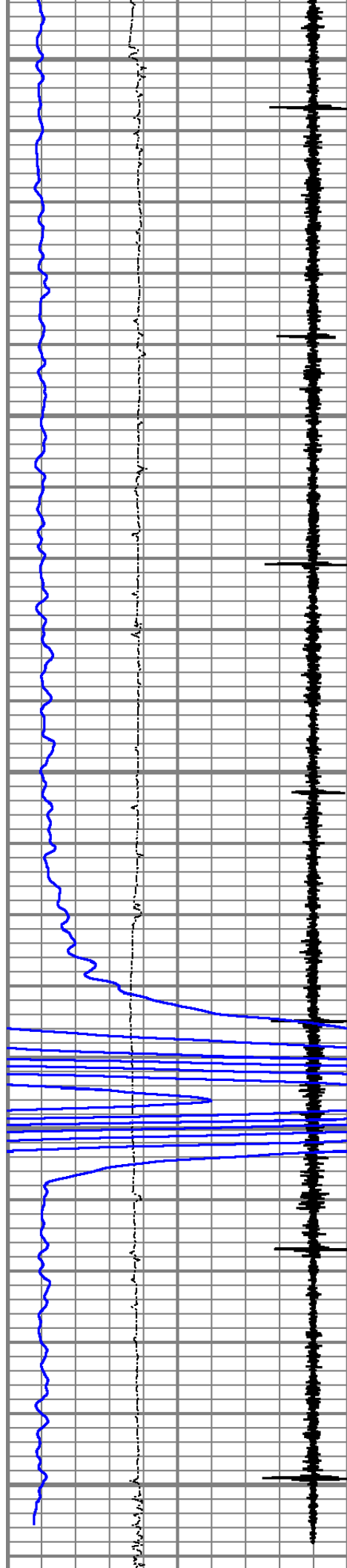
SLUG # 2 CHASE # 2
15 GPM @ 5 PSI

Database File western ref swd 1\western13 swd 071218.db
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Presentation Format tracergw
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Charted by Depth in Feet scaled 1:240

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0	UPPER DET. (GAPI)	100

0	Lower Det. (GAPI)	1000
0	LSPD (ft/min)	-100
	TOD (sec)	





-18	CCL	2
0	LTEN (lb)	1000
0	UPPER DET. (GAPI)	100

0	Lower Det. (GAPI)	1000
0	LSPD (ft/min)	-100
	TOD (sec)	



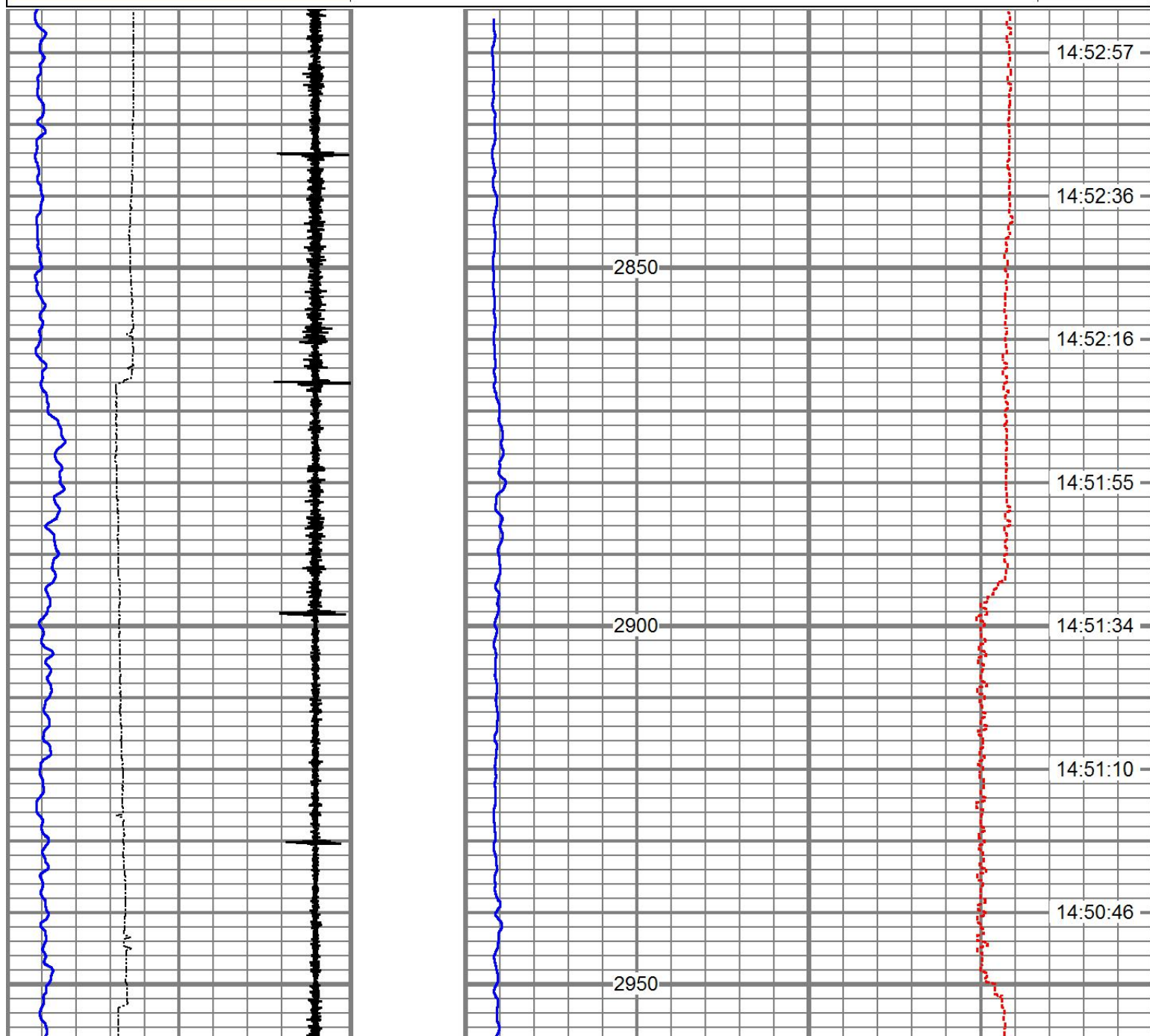
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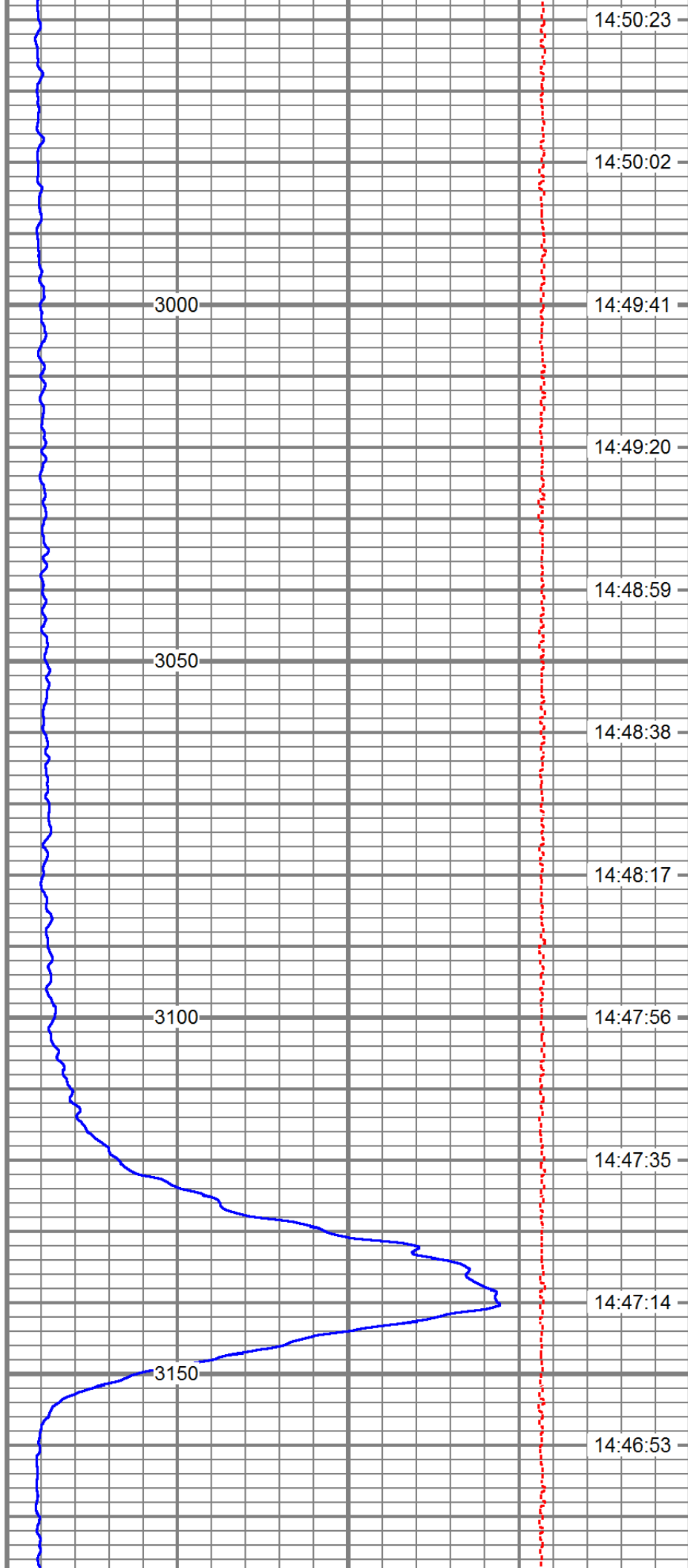
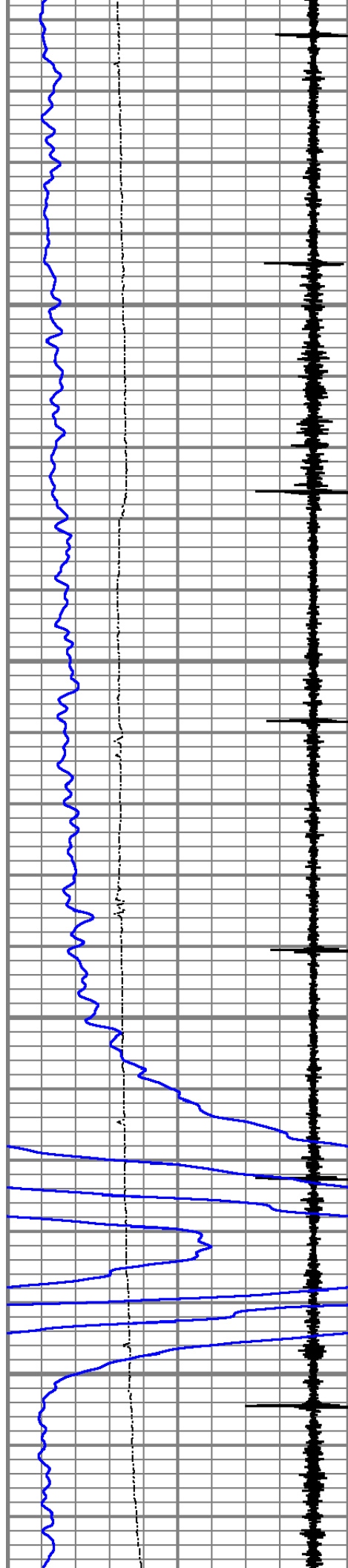
SLUG # 2 CHASE # 3
15 GPM @ 5 PSI

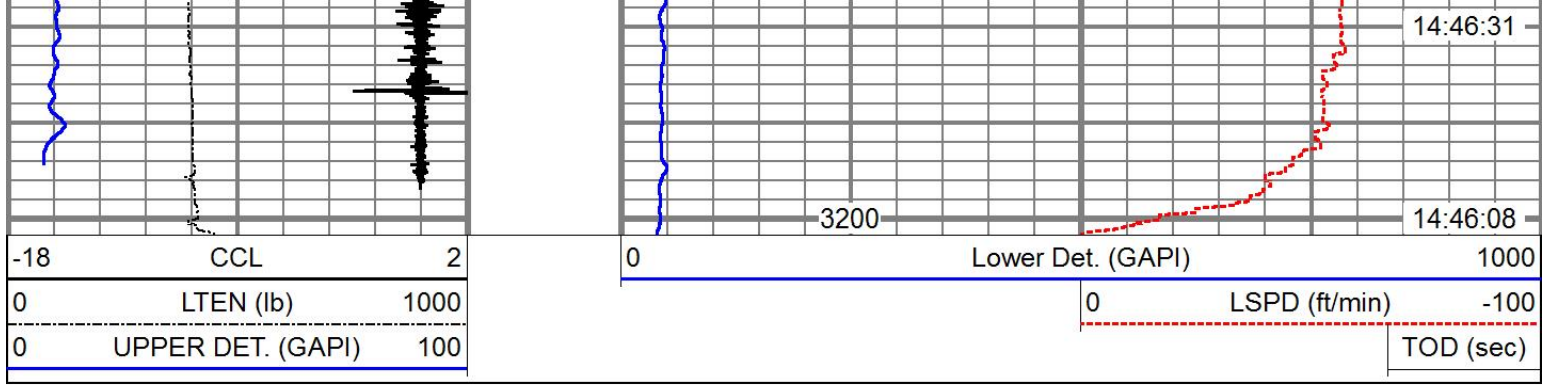
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Presentation Format tracergw
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0	LTEN (lb)	1000
0	UPPER DET. (GAPI)	100

0	Lower Det. (GAPI)	1000
0	LSPD (ft/min)	-100
	TOD (sec)	



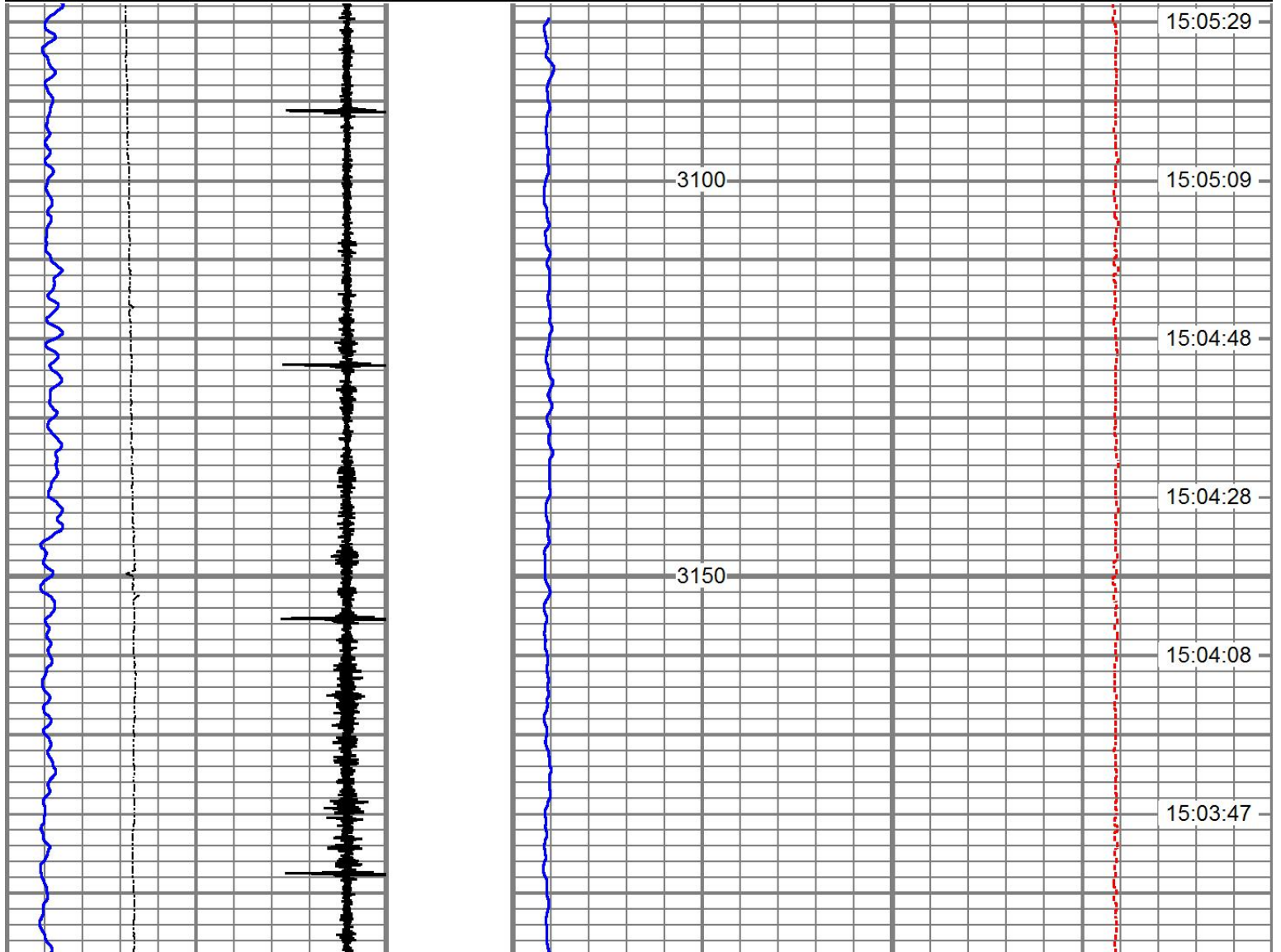
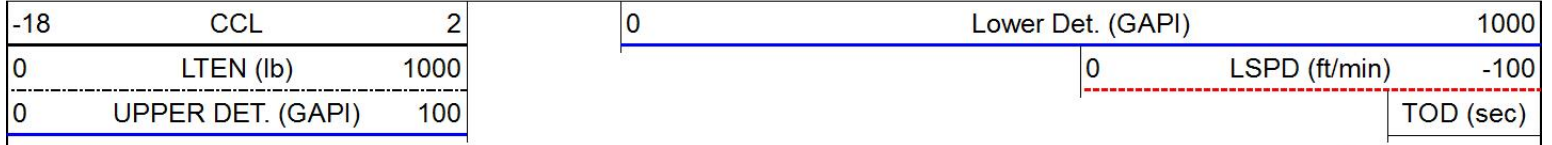


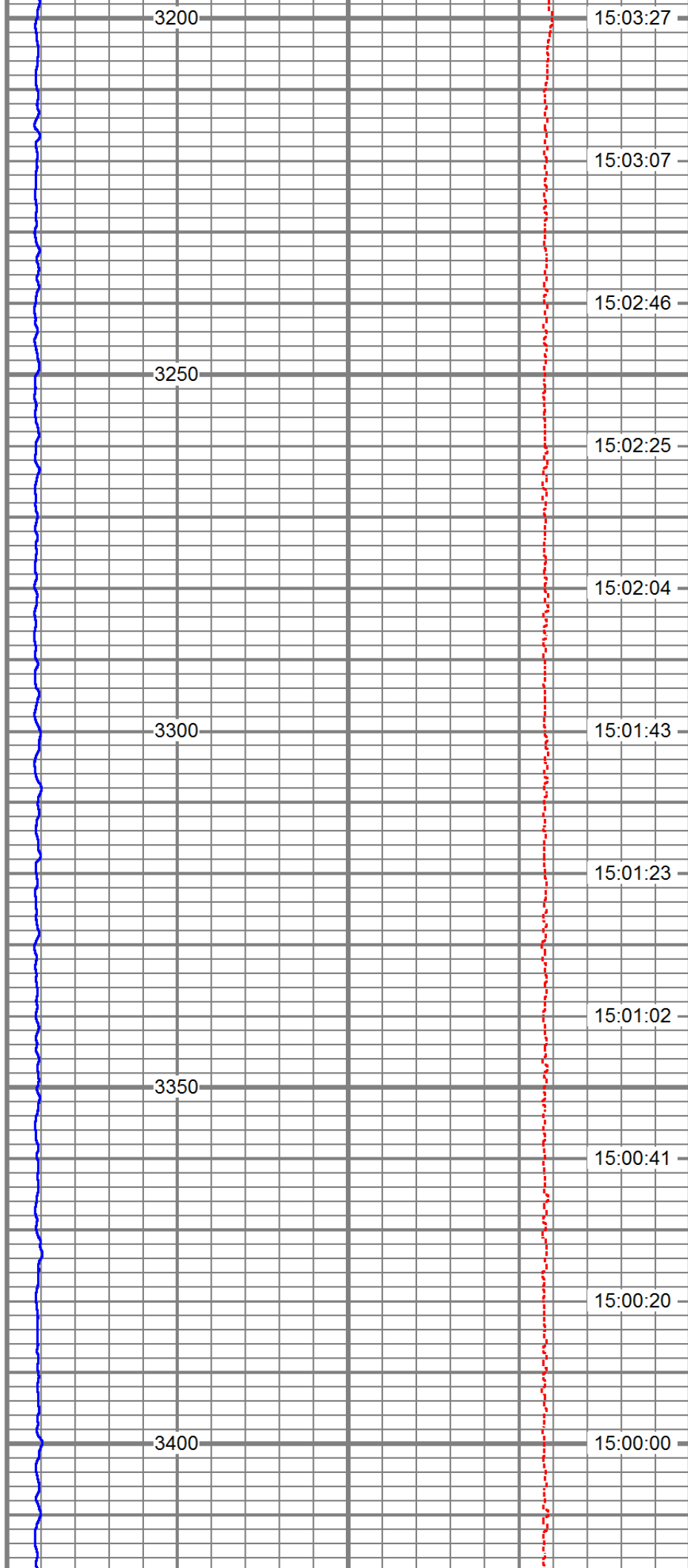
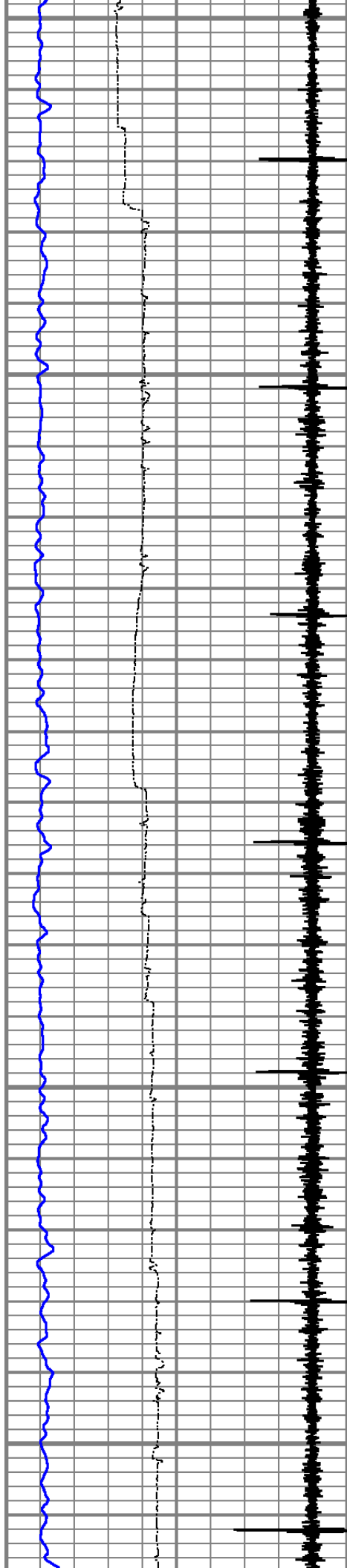


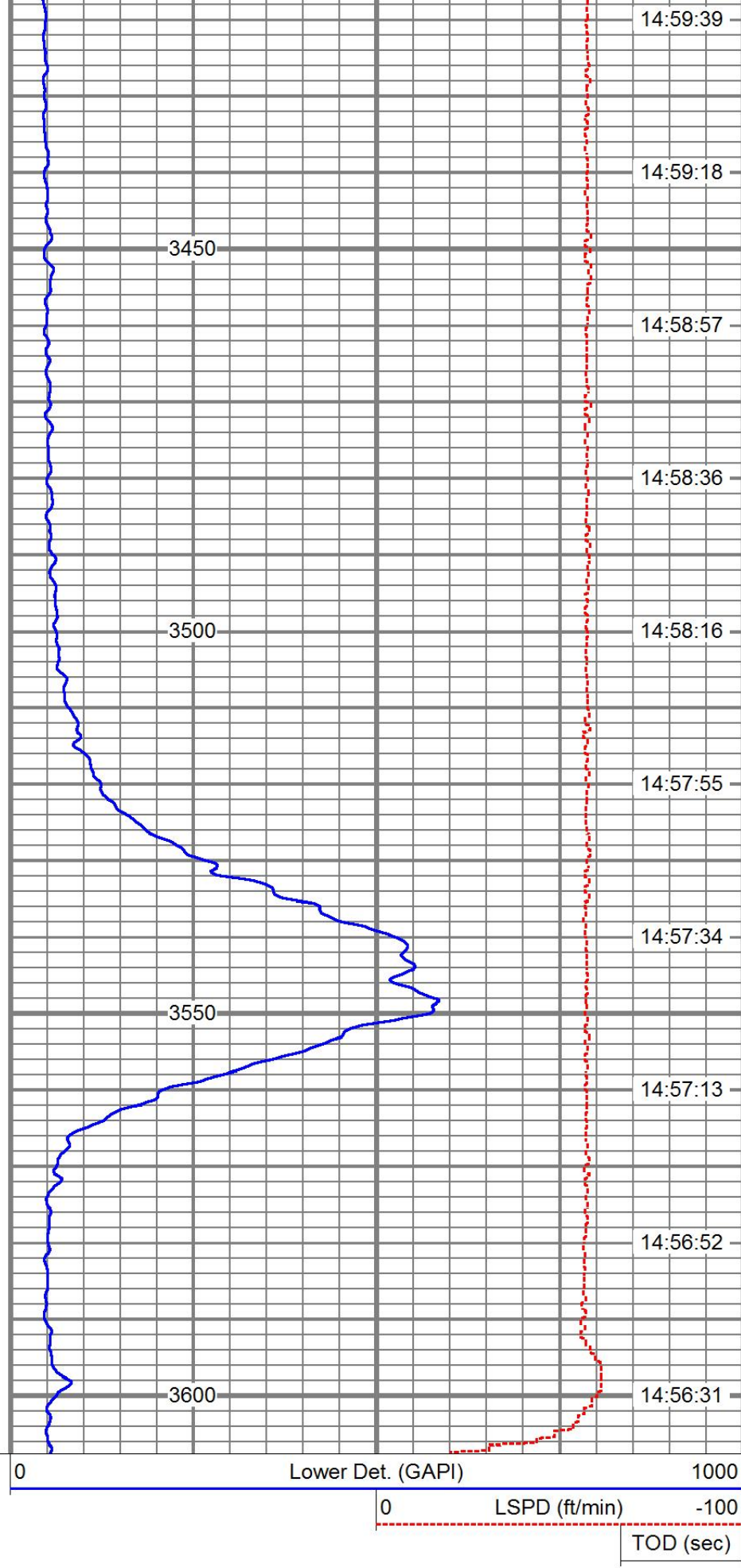
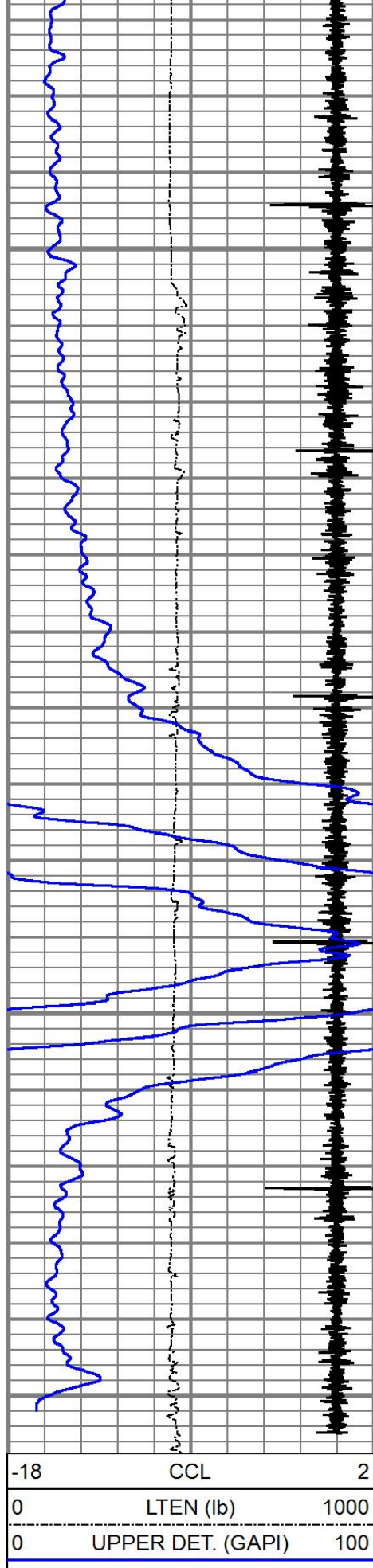
RUN # 11

SLUG # 2 CHASE # 4
15 GPM @ 5 PSI

Database File western ref swd 1\western13 swd 071218.db
Dataset Pathname slug2/pass4
Presentation Format tracergw
Dataset Creation Thu Jul 12 14:56:16 2018
Charted by Depth in Feet scaled 1:240



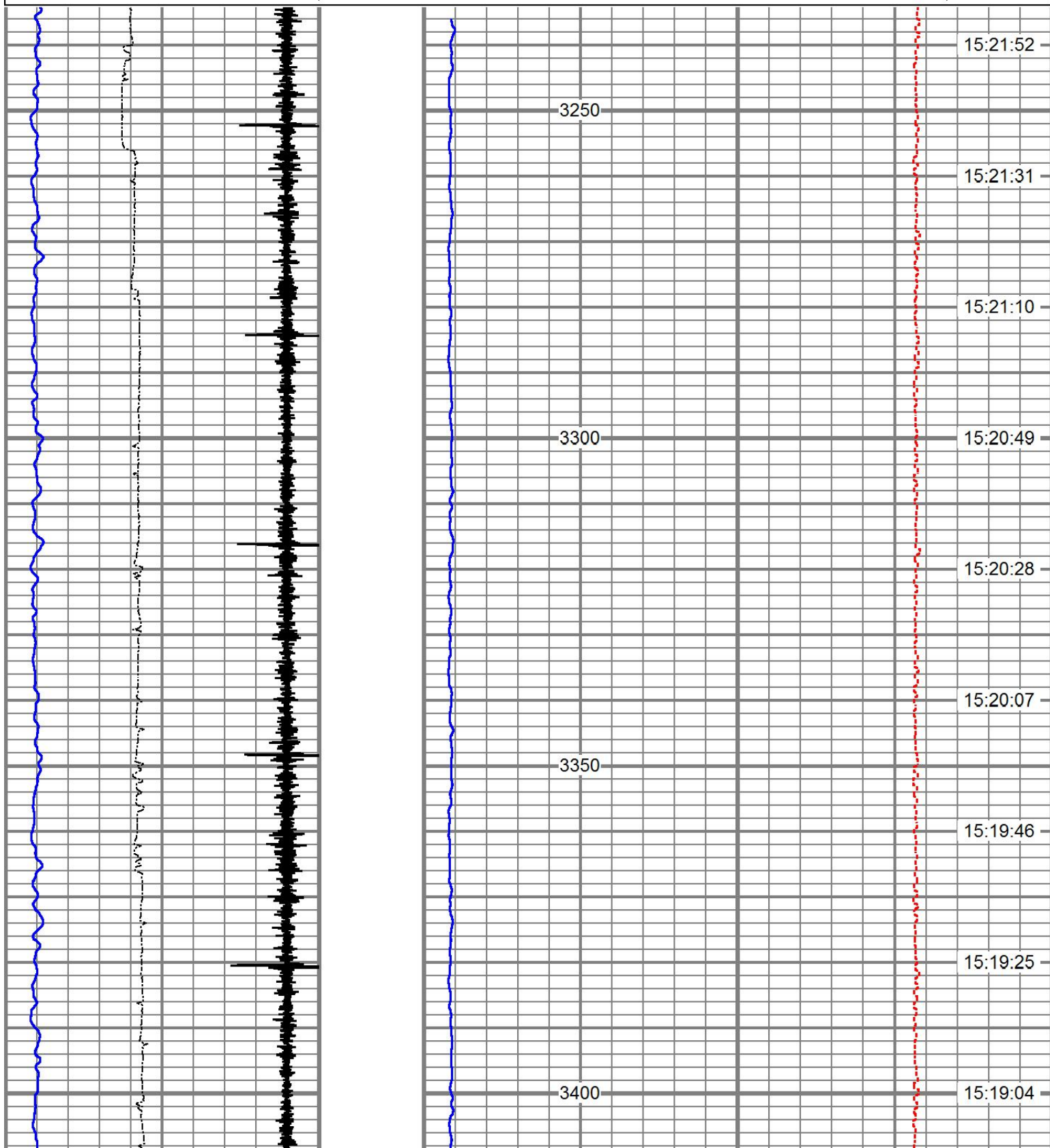


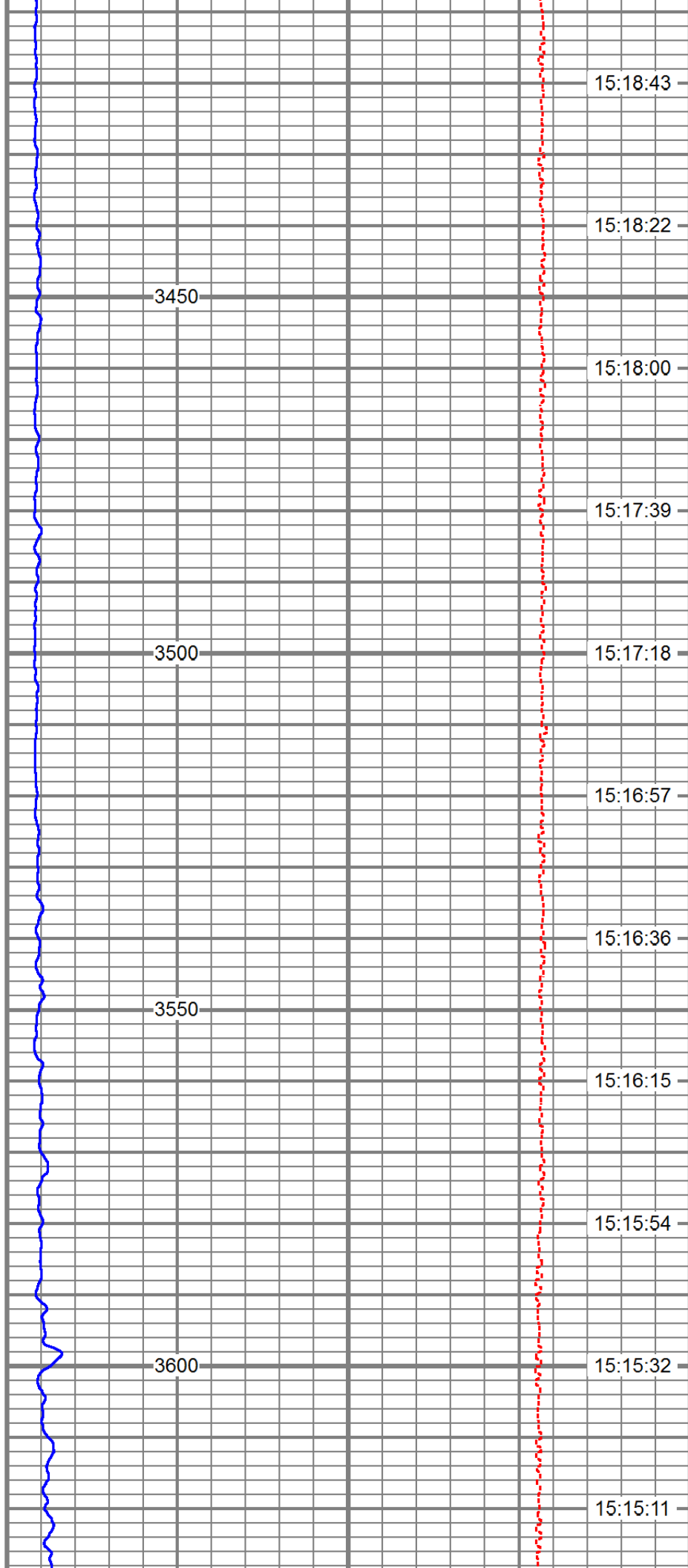
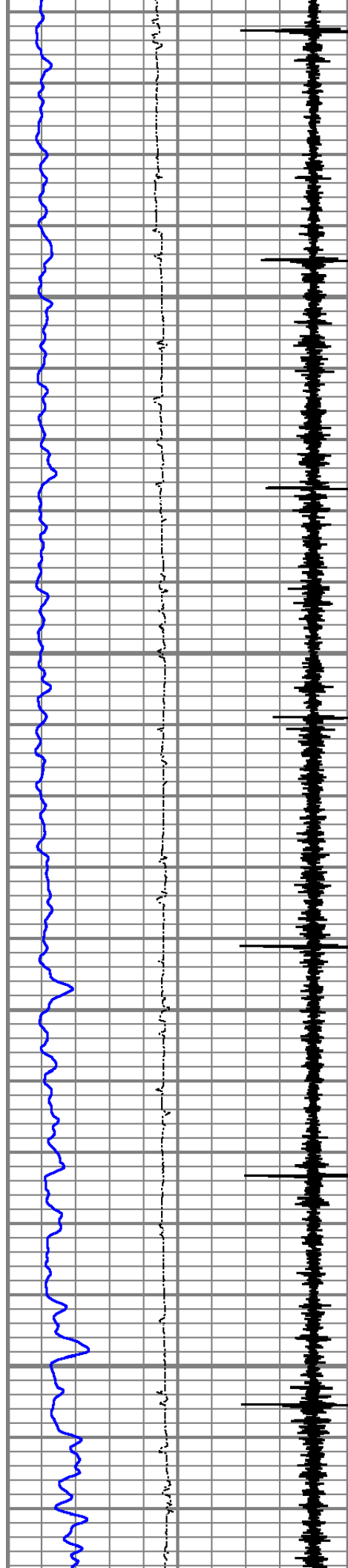


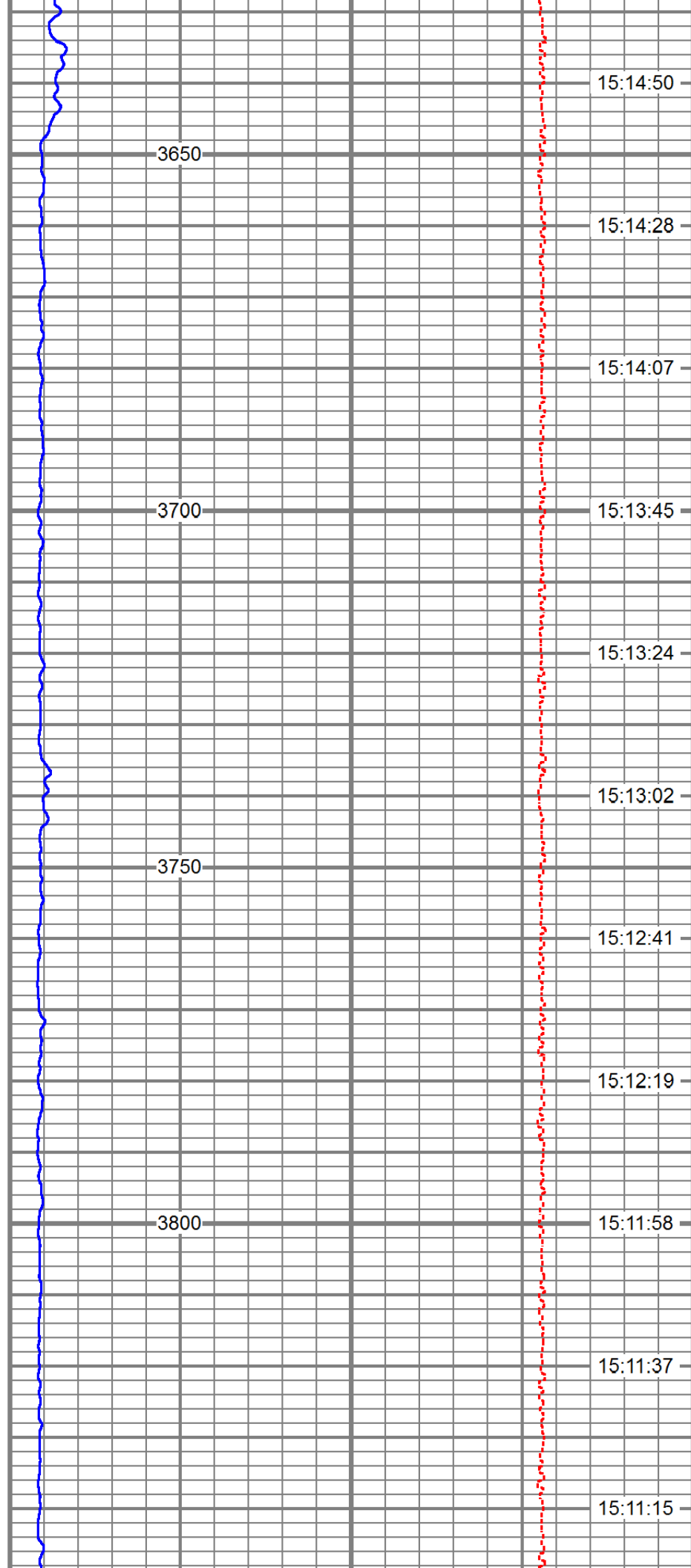
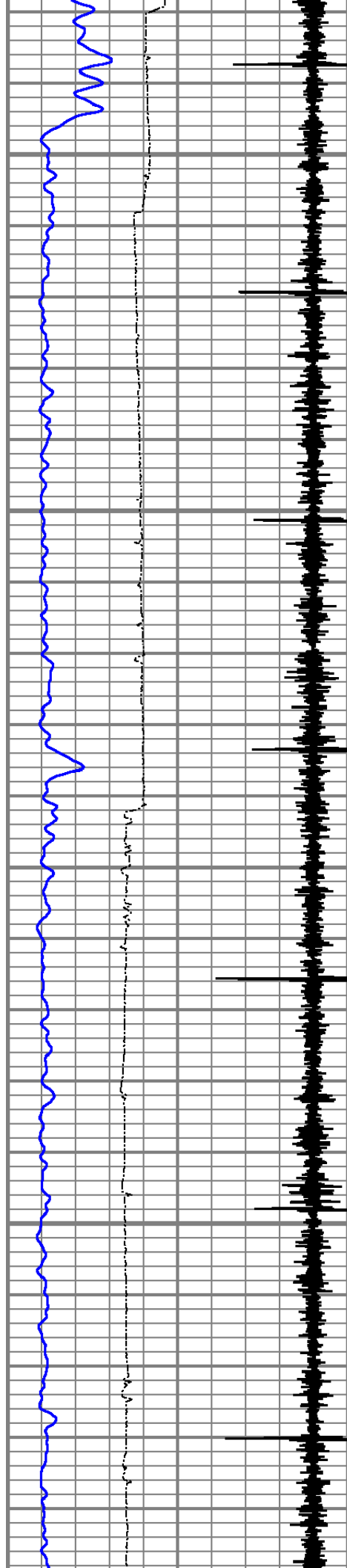
RUN # 12

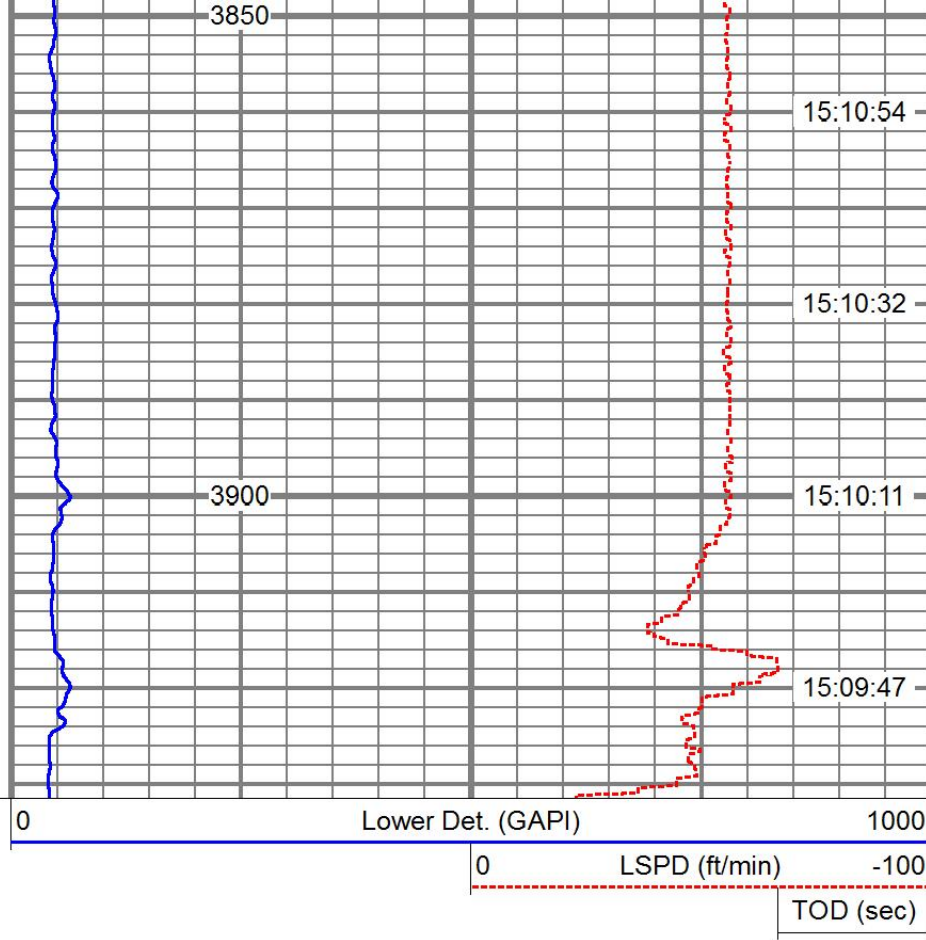
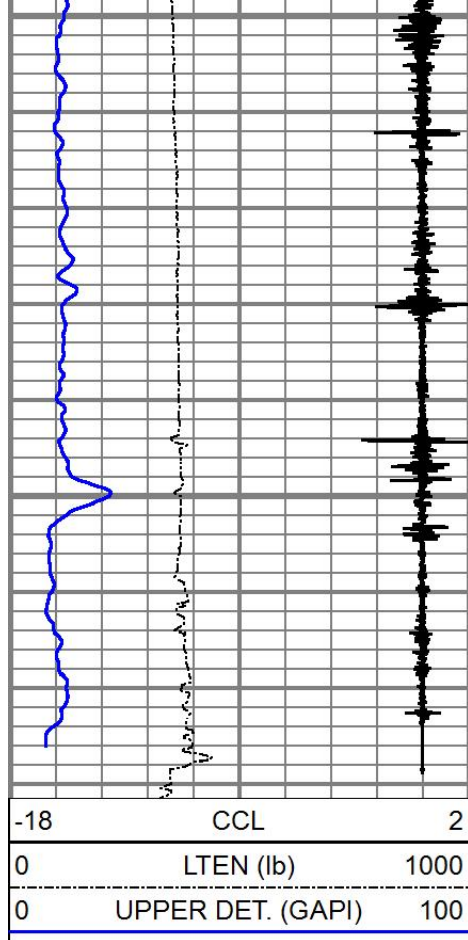
Database File western ref swd 1\western13 swd 071218.db
Dataset Pathname slug2/pass5
Presentation Format tracergw
Dataset Creation Thu Jul 12 15:09:18 2018
Charted by Depth in Feet scaled 1:240

-18	CCL	2	0	Lower Det. (GAPI)	1000
0	LTEN (lb)	1000	0	LSPD (ft/min)	-100
0	UPPER DET. (GAPI)	100			TOD (sec)





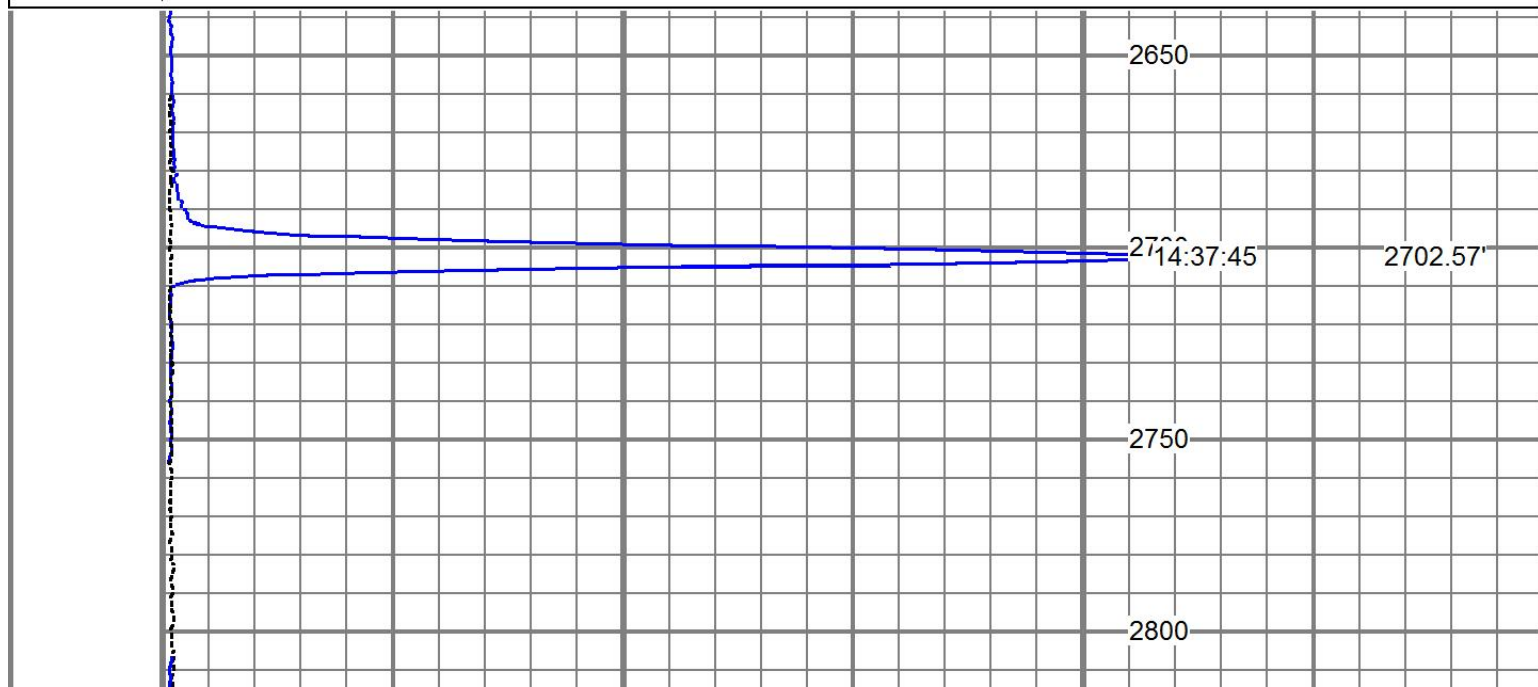


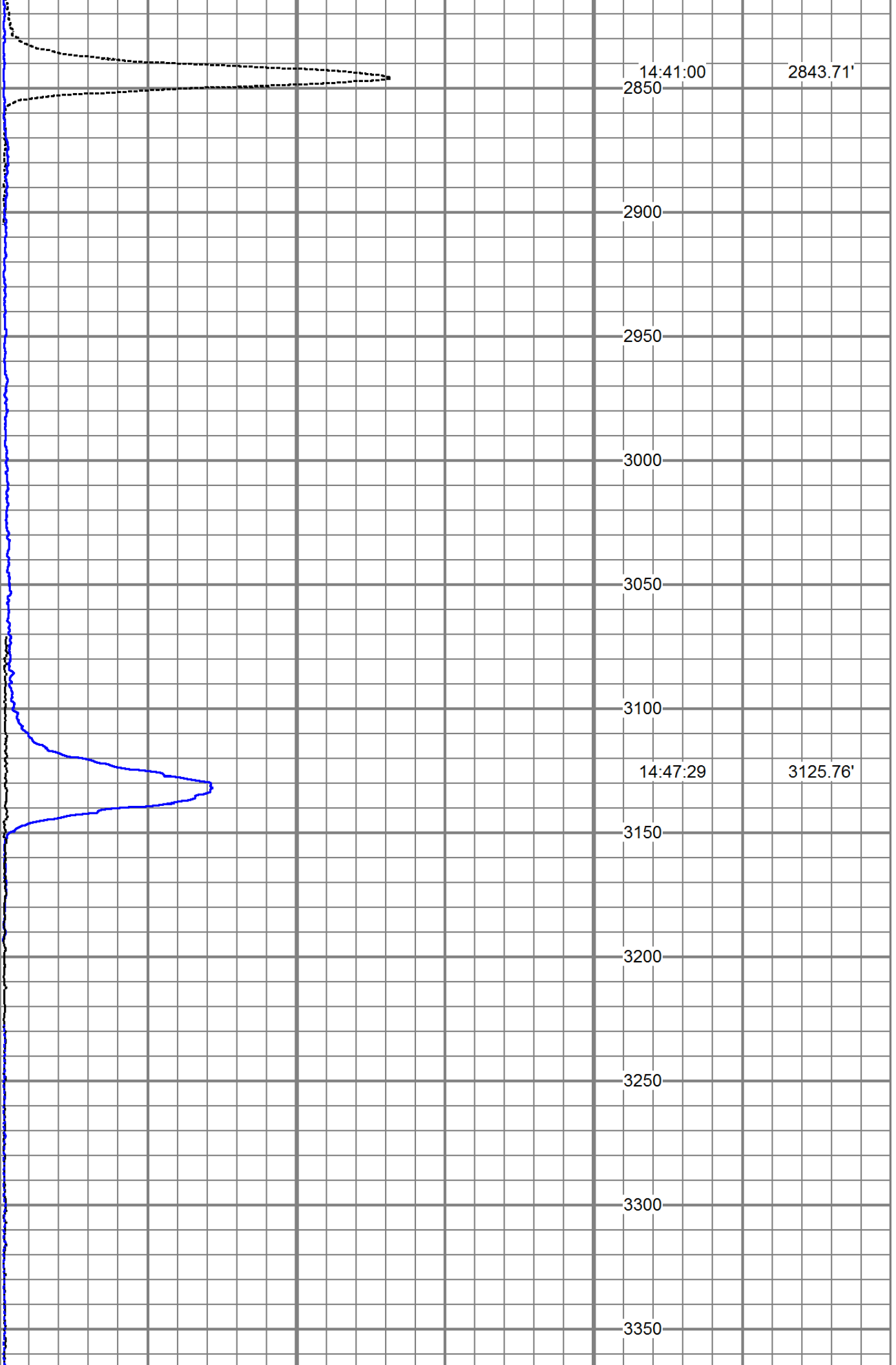


SLUG 2 MERGED

Database File: western ref swd 1\western13 swd 071218.db
 Dataset Pathname: slug2/_profile1_
 Presentation Format: trcprof
 Dataset Creation: Thu Jul 12 15:36:59 2018
 Charted by: Depth in Feet scaled 1:600

0 TRACER 1500





14:41:00
2850

2843.71'

2900

2950

3000

3050

3100

14:47:29

3125.76'

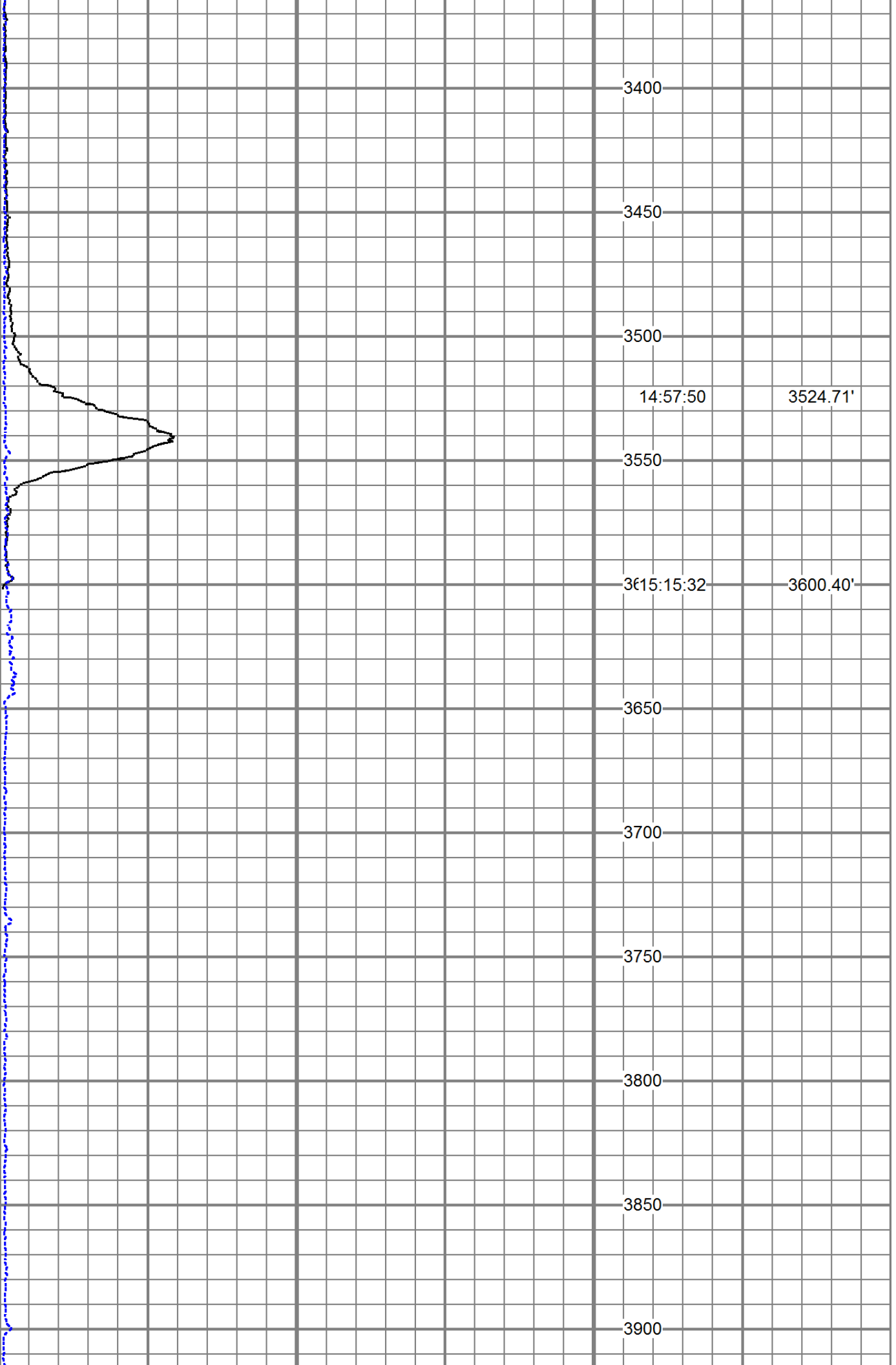
3150

3200

3250

3300

3350



0

TRACER

1500



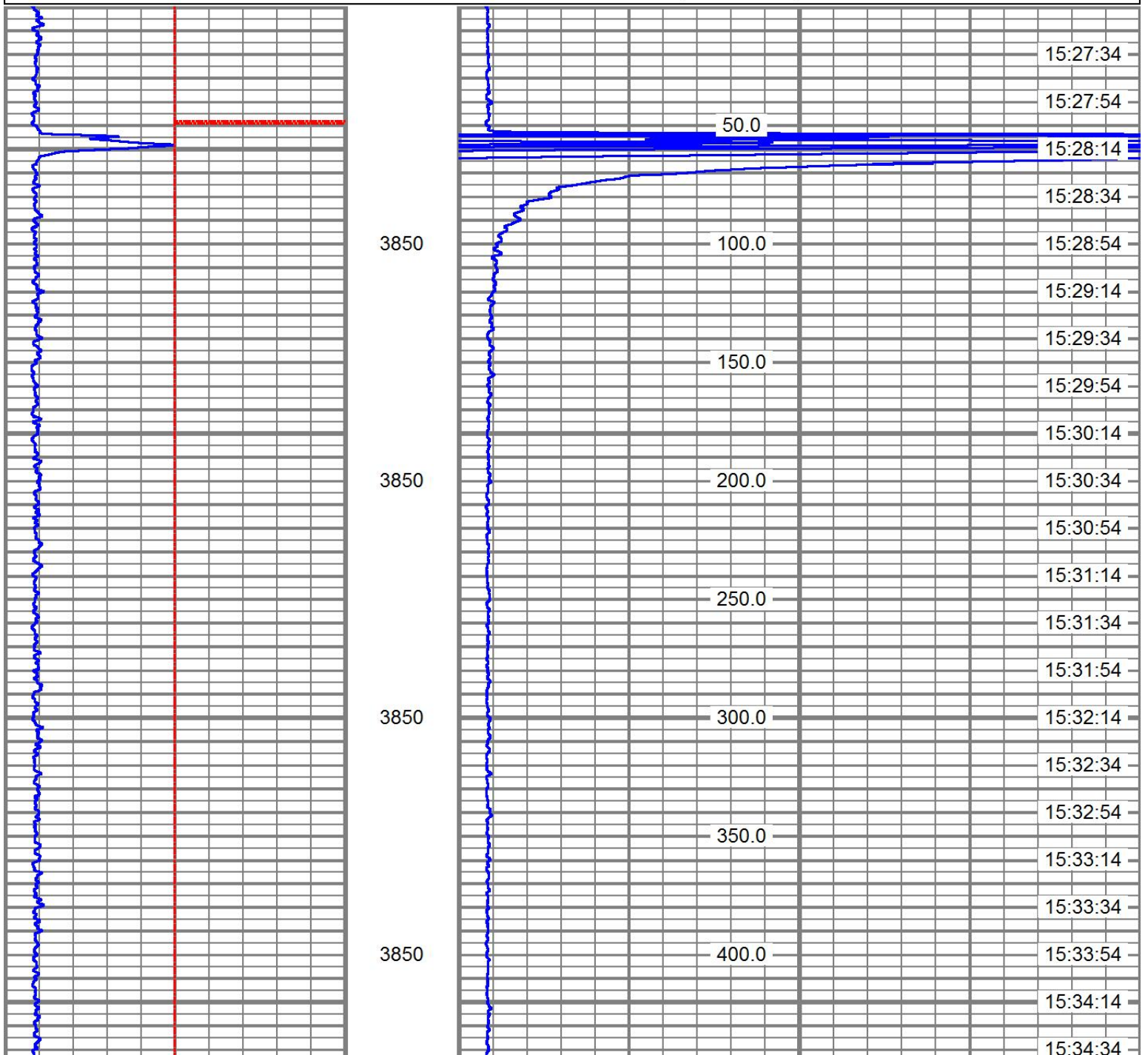
QES WIRELINE LLC

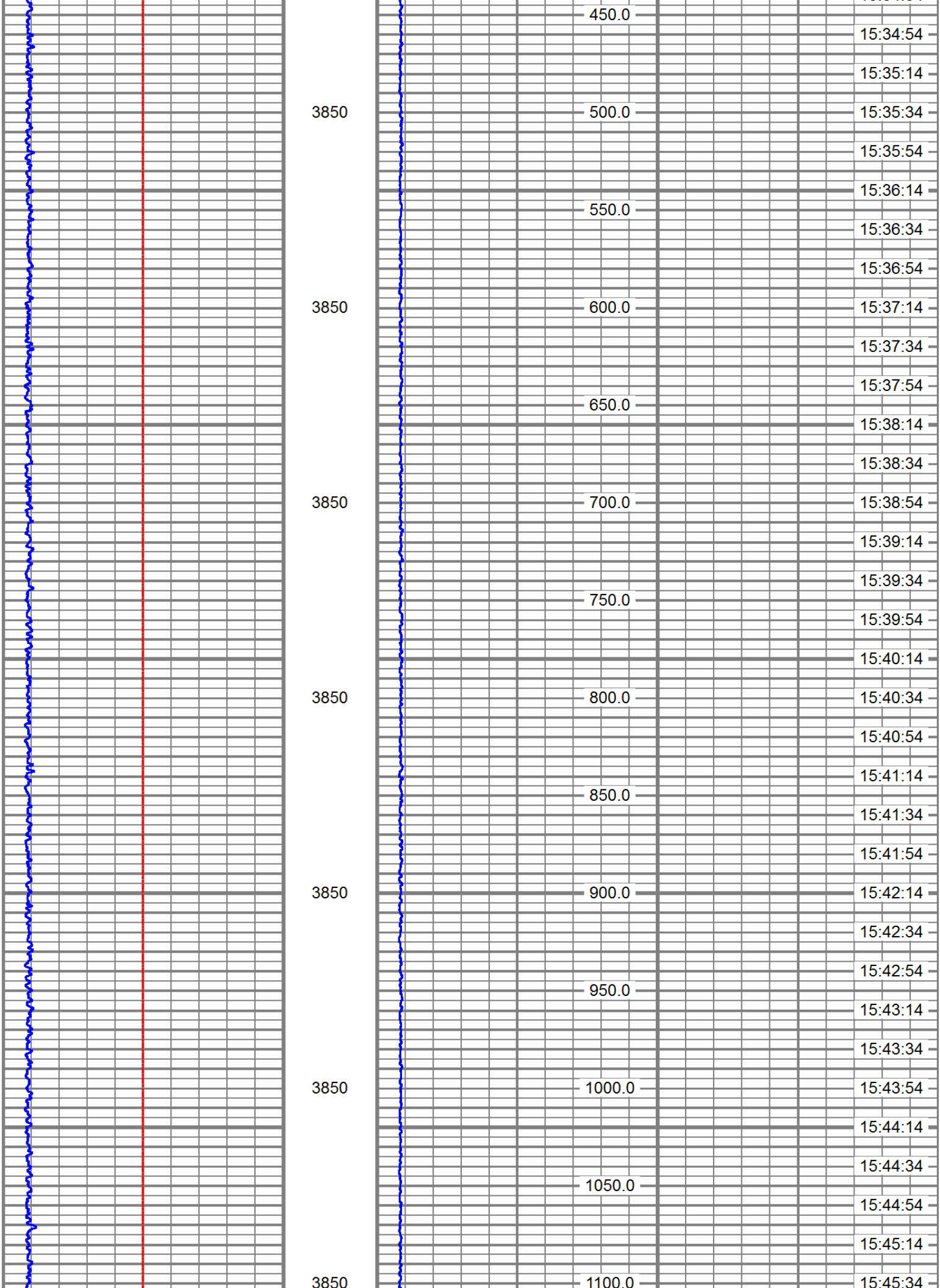
RUN # 13

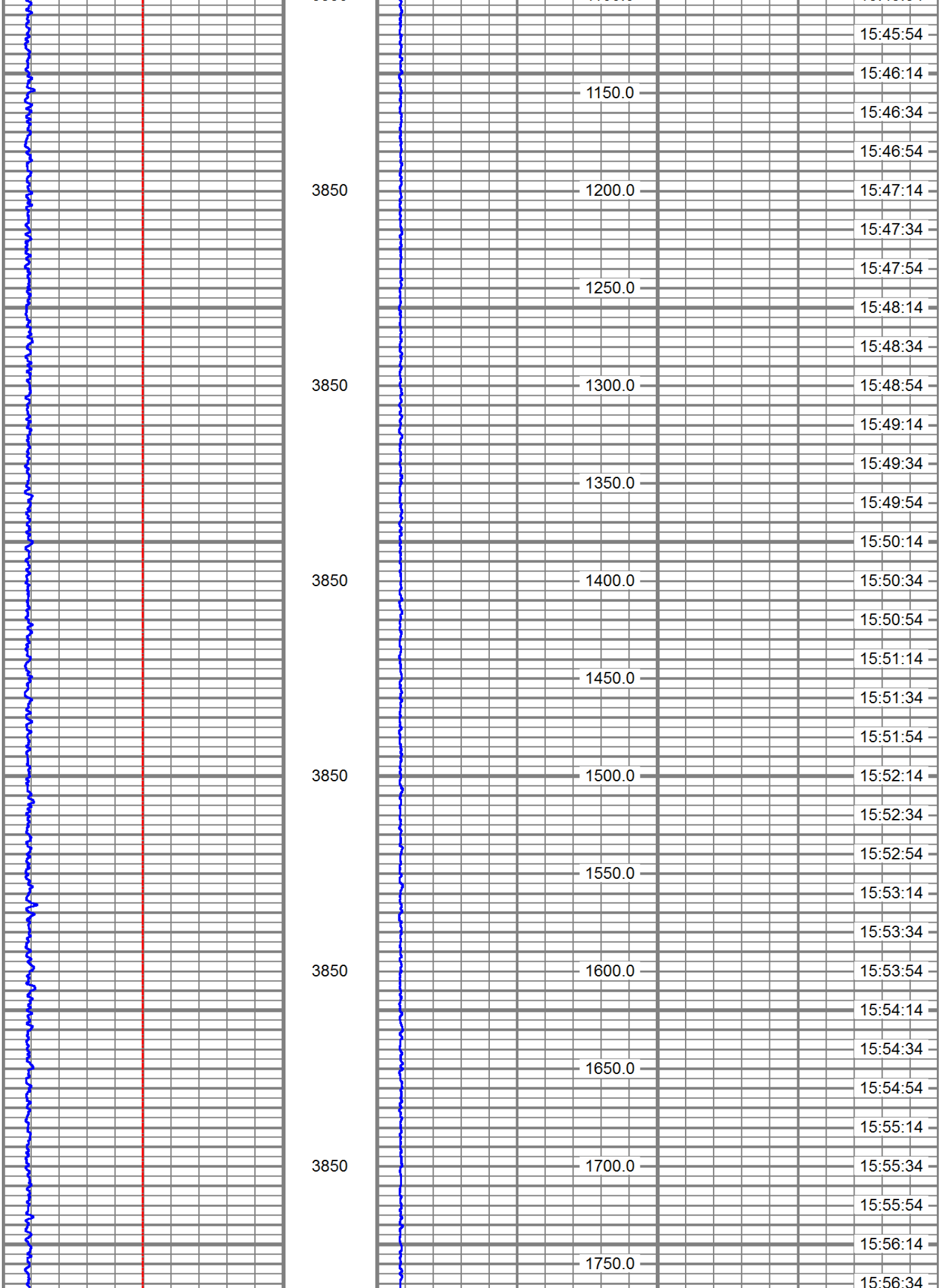
TIME DRIVE EJECT @ 3850
15 GPM @ 5 PSI

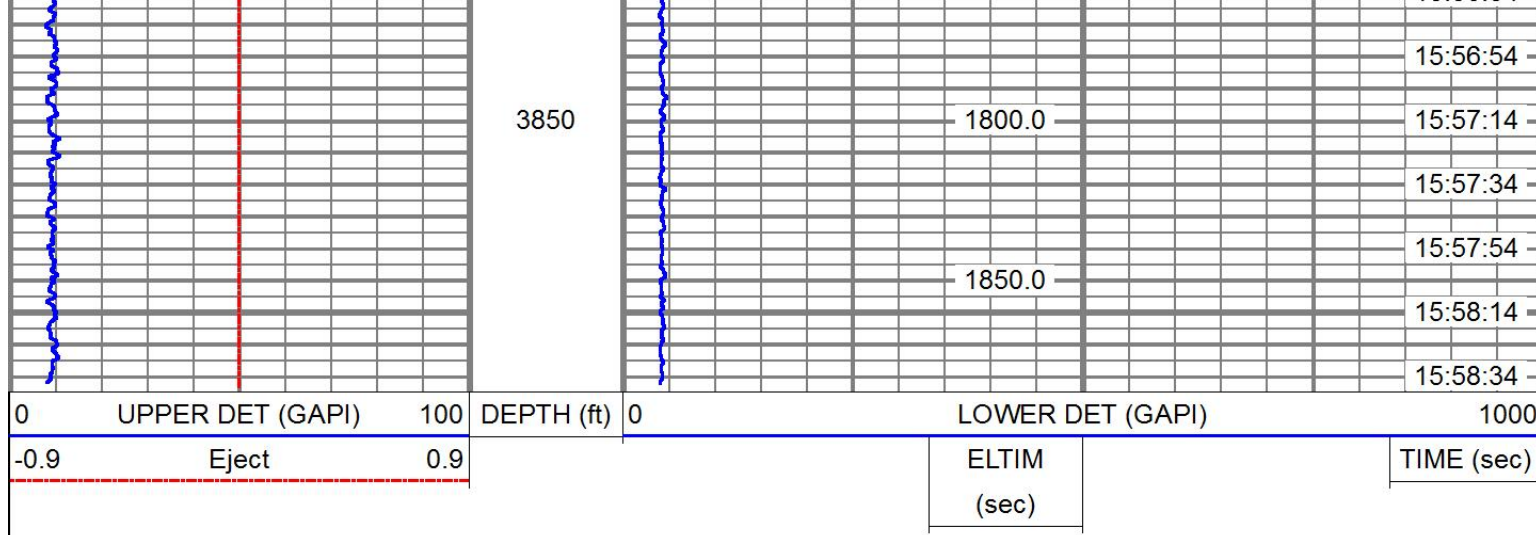
Database File western ref swd 1\western13 swd 071218.db
Dataset Pathname td/pass1
Presentation Format tratmd
Dataset Creation Thu Jul 12 15:27:14 2018
Charted by Time scaled 60/hour

0	UPPER DET (GAPI)	100	DEPTH (ft)	0	LOWER DET (GAPI)	1000
-0.9	Eject	0.9		ELTIM		TIME (sec)
				(sec)		





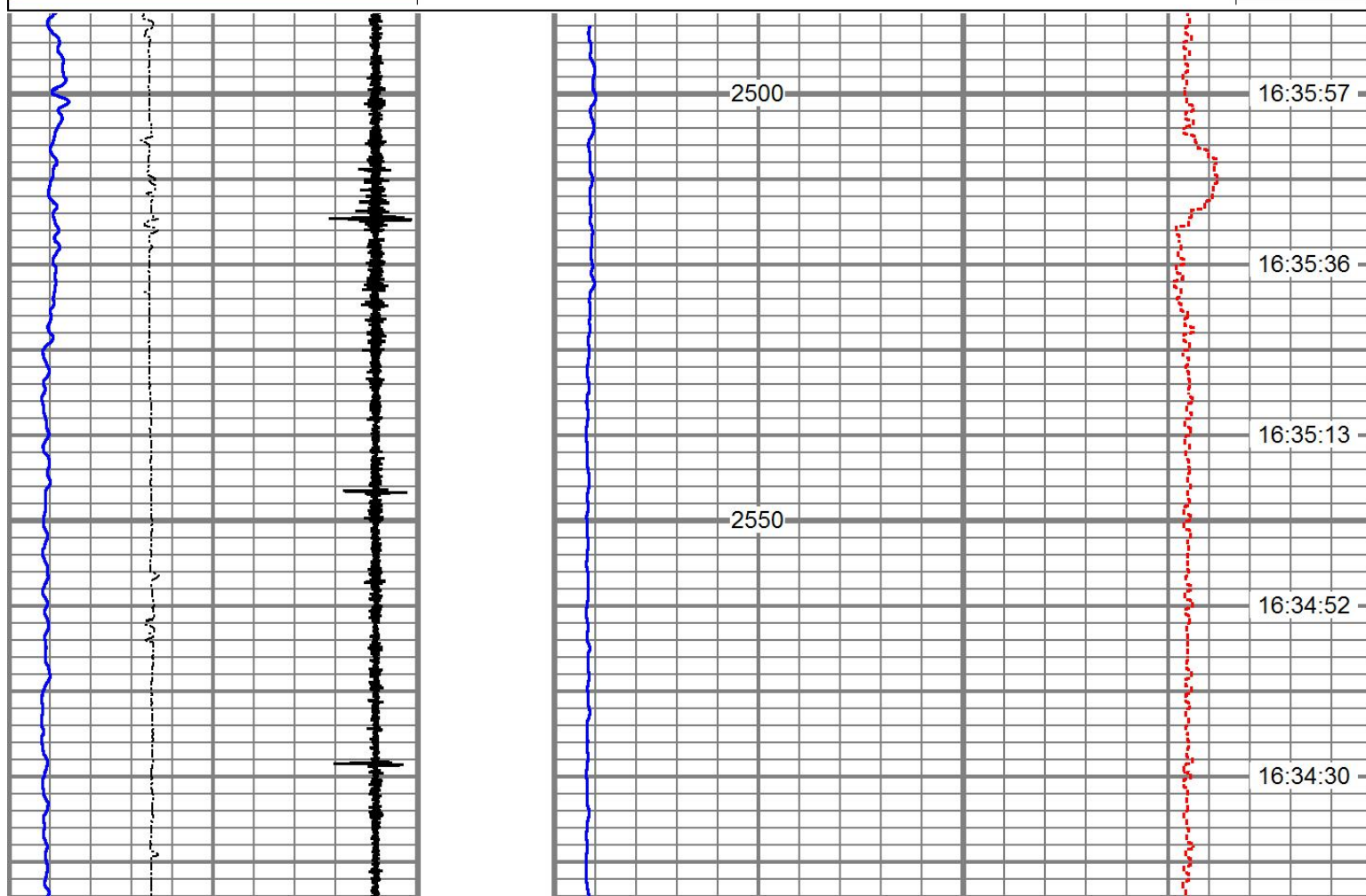
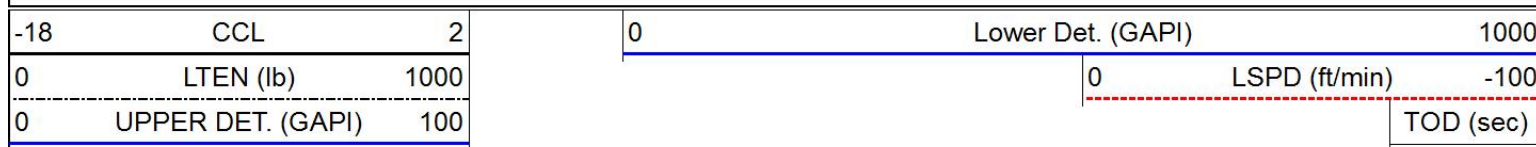


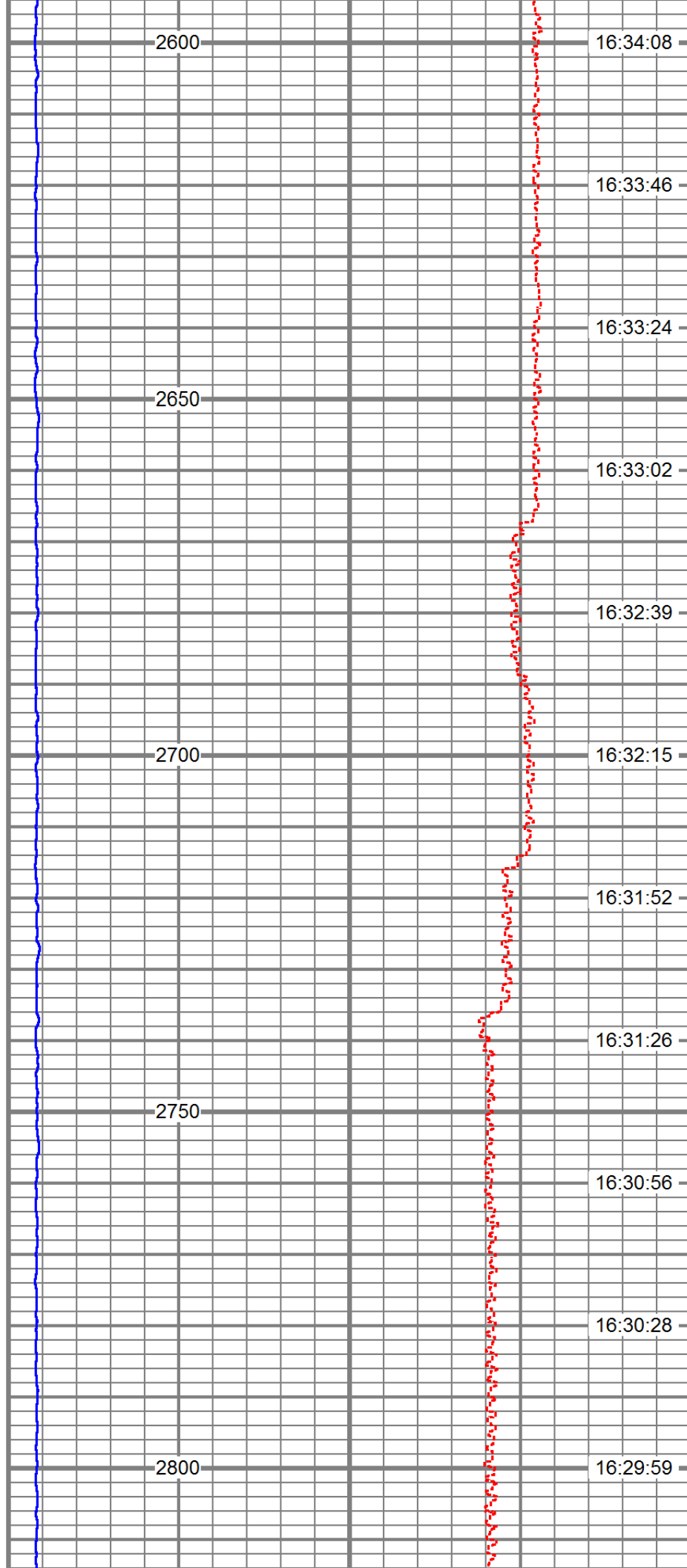
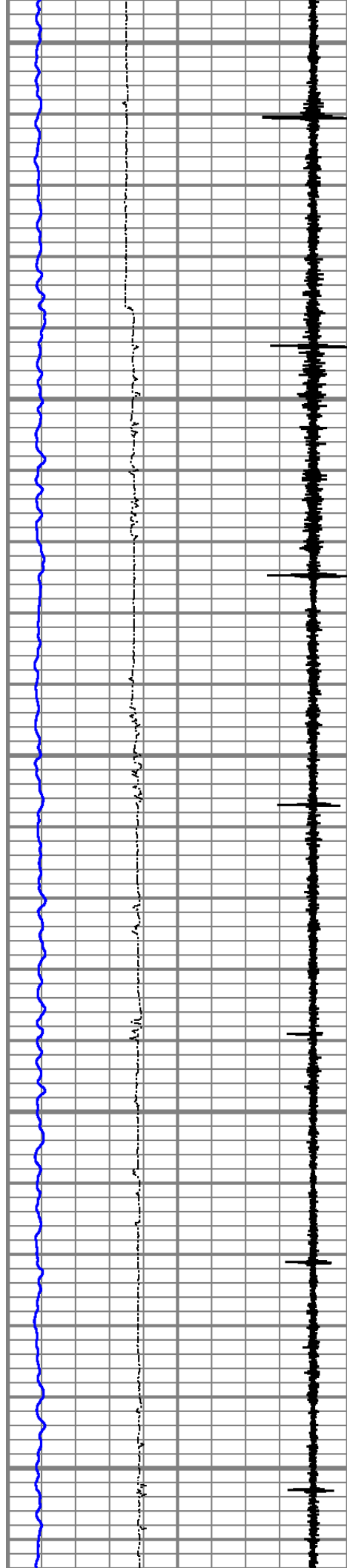


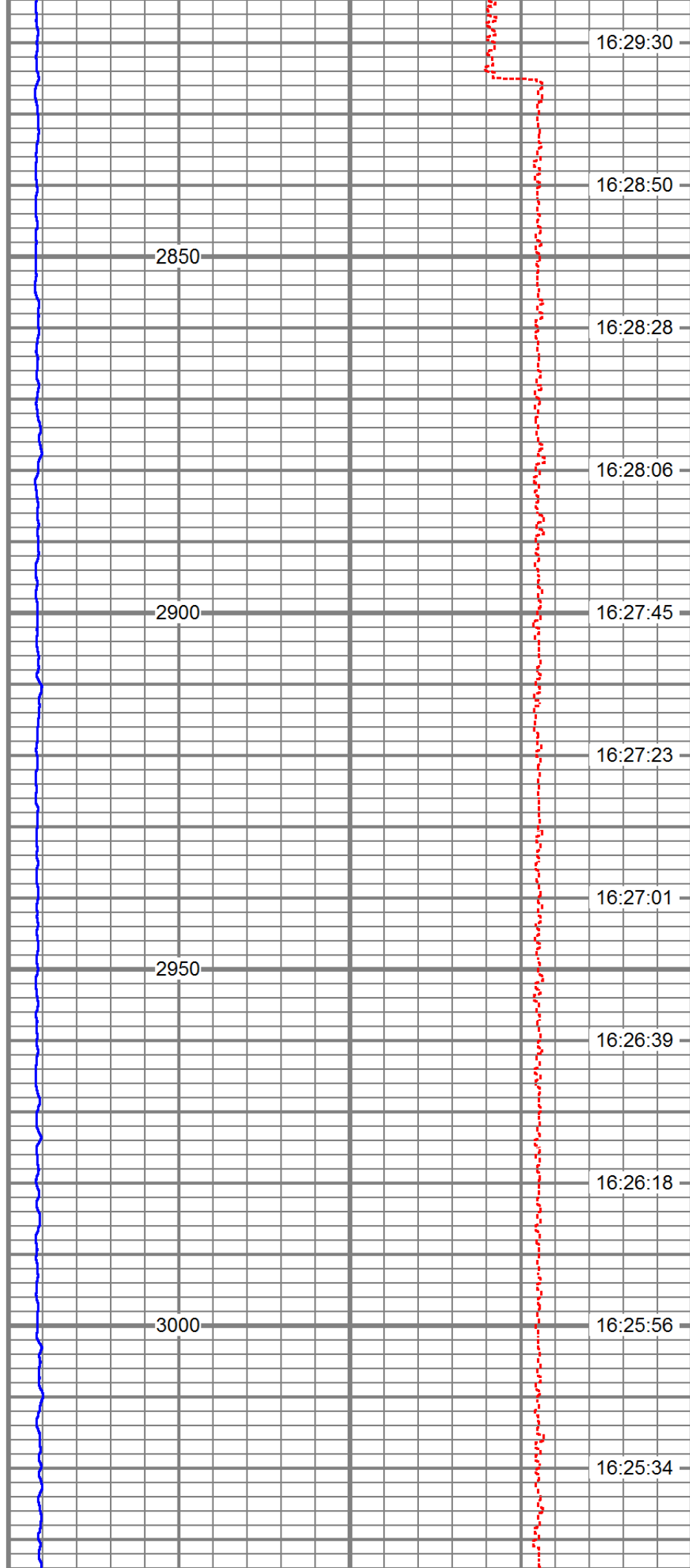
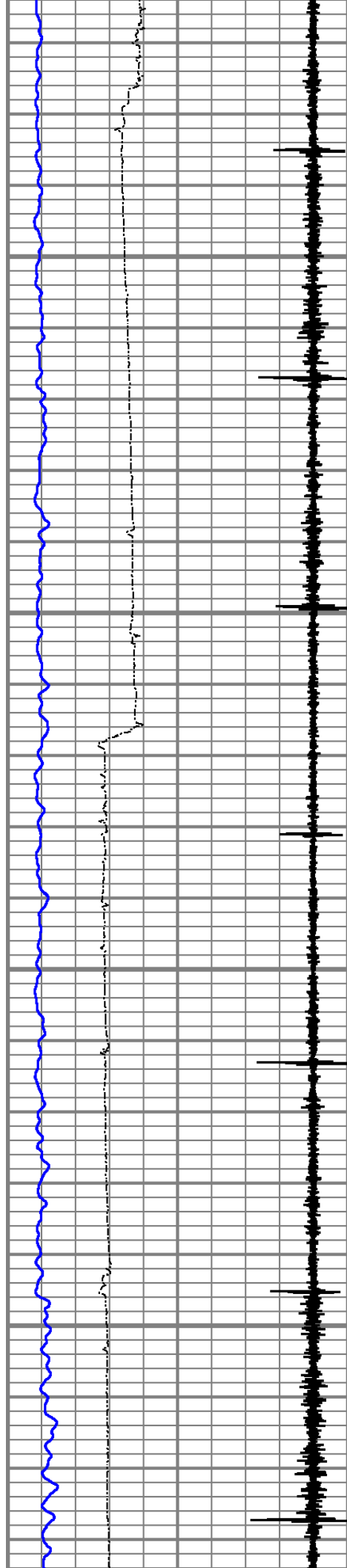
RUN # 14

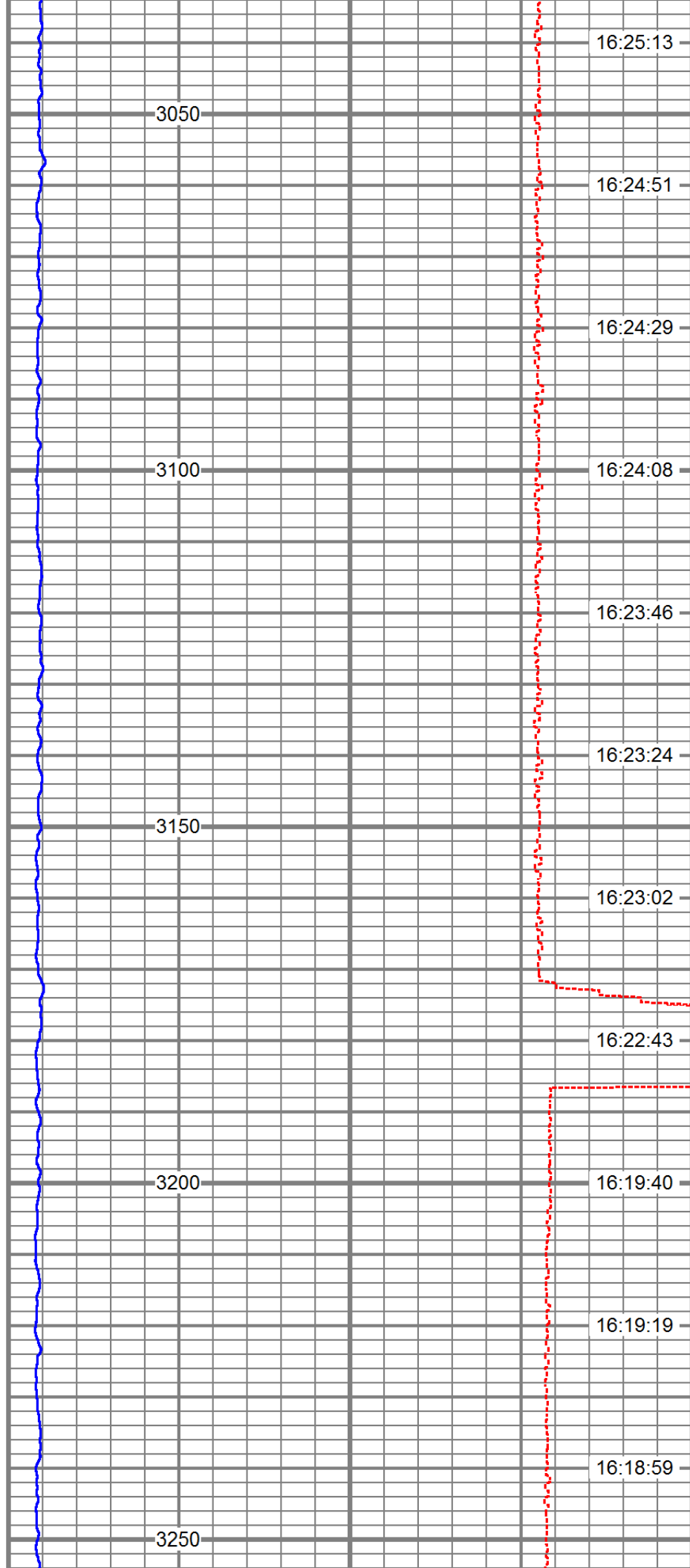
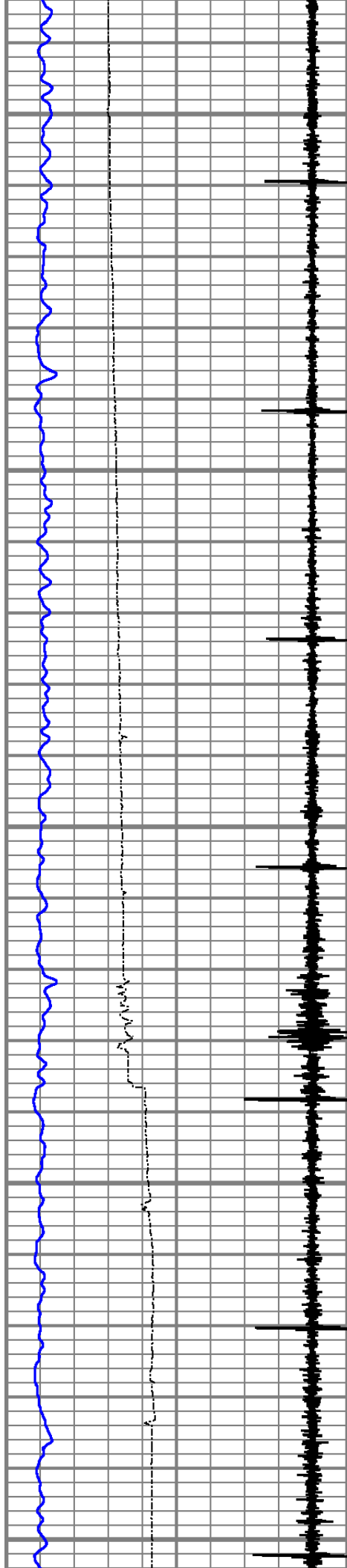
POST SURVEY BASE LOG
0 GPM @ 0 PSI

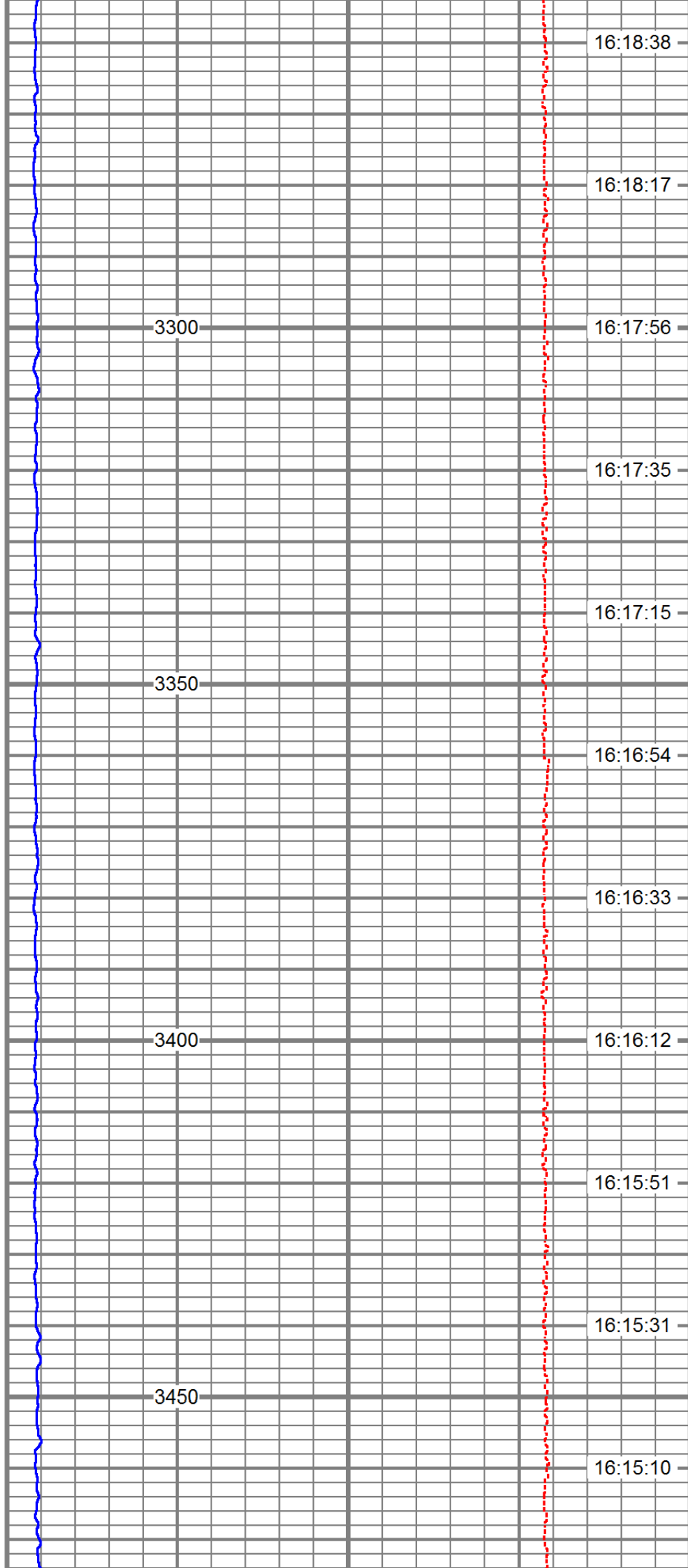
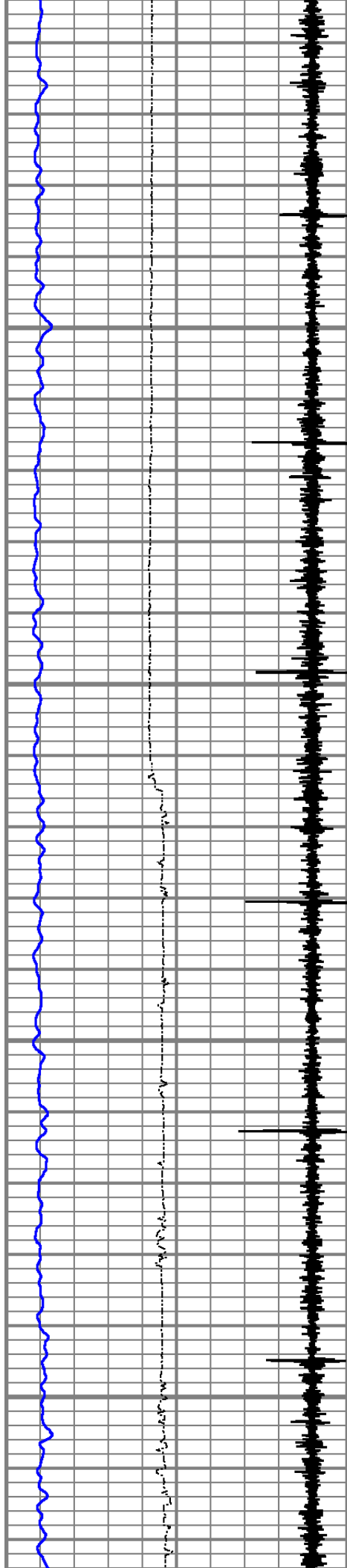
Database File western ref swd 1\western13 swd 071218.db
Dataset Pathname pstbse/pass1
Presentation Format tracergw
Dataset Creation Thu Jul 12 16:06:58 2018
Charted by Depth in Feet scaled 1:240

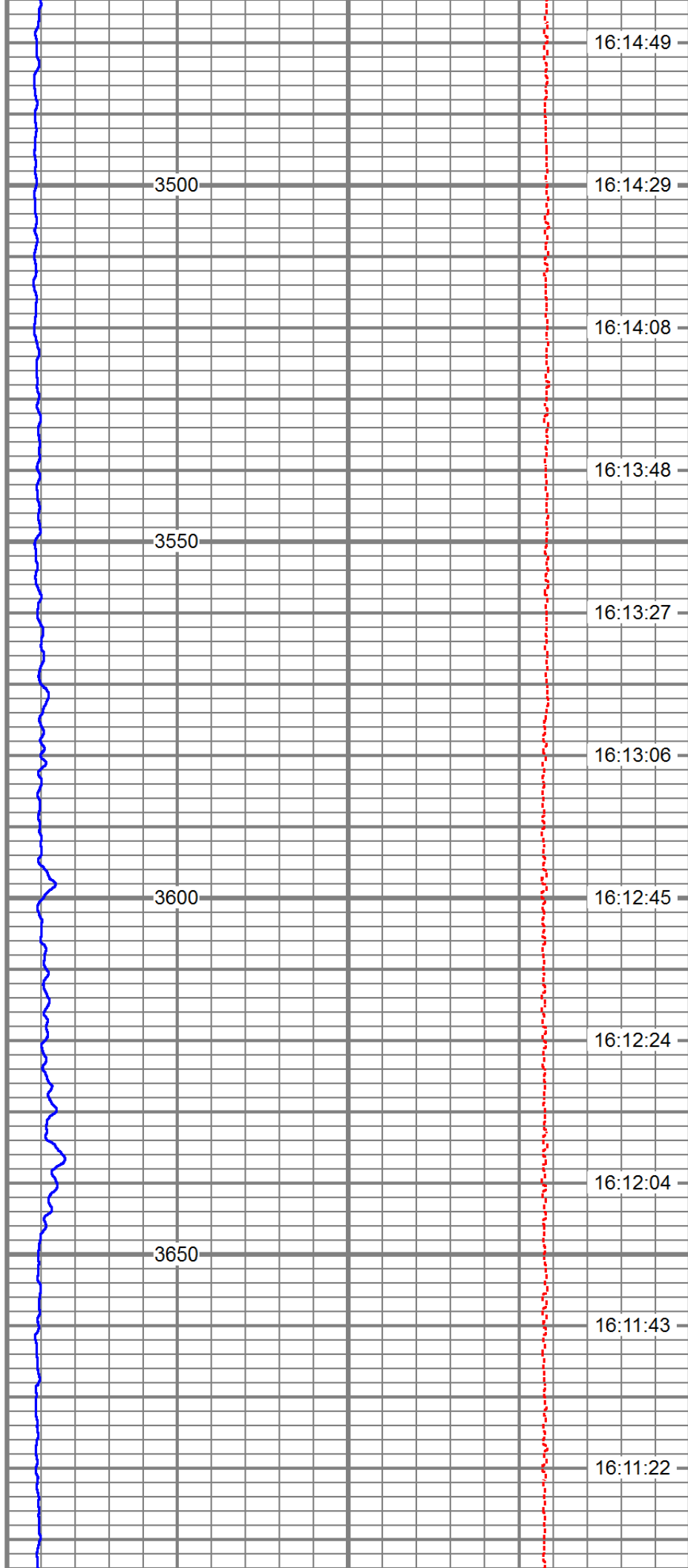
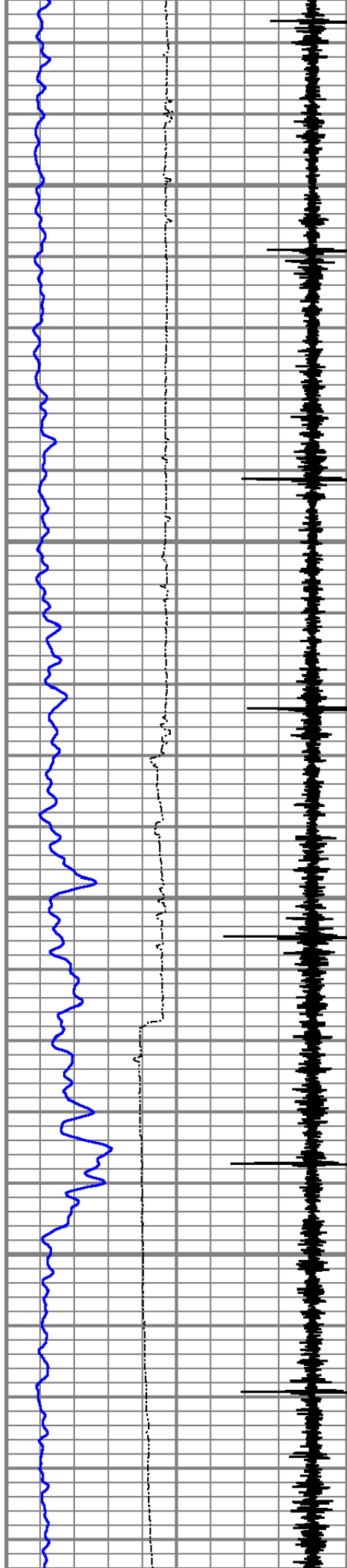


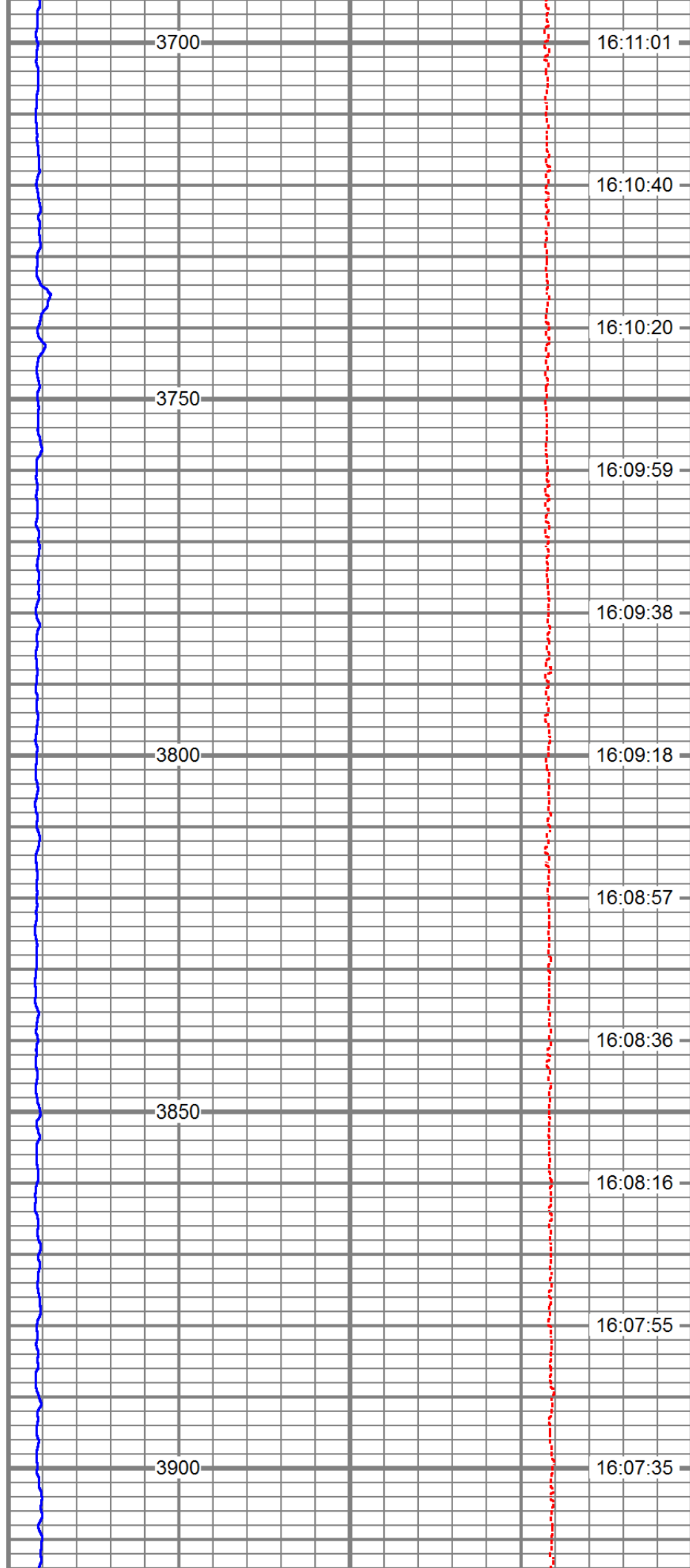
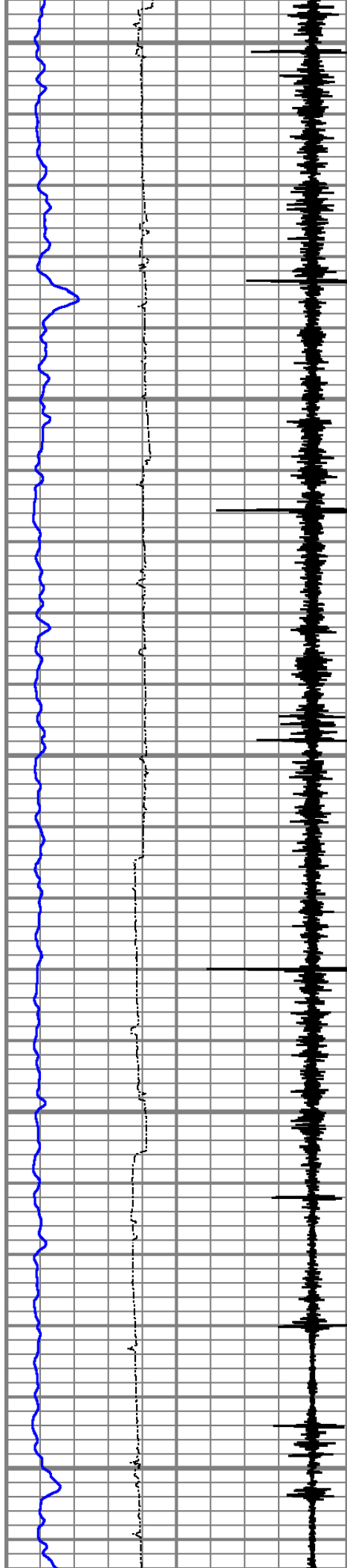


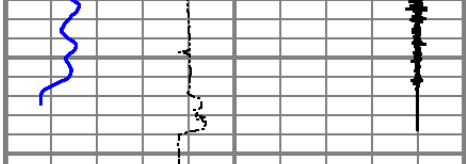




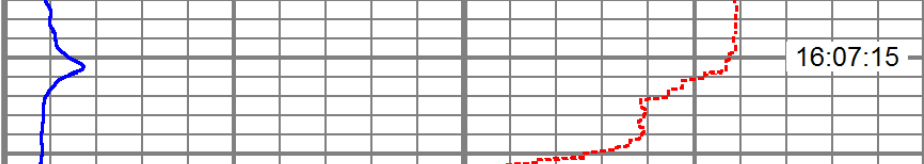








-18	CCL	2
0	LTEN (lb)	1000
0	UPPER DET. (GAPI)	100



0	Lower Det. (GAPI)	1000
0	LSPD (ft/min)	-100
		TOD (sec)