National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594

RRD22MR010

ONBOARD VIDEO RECORDER

Specialist's Factual Report

October 17, 2022

A. ACCIDENT SUMMARY

Location:	Mendon, Missouri
Date:	June 27, 2022
Vehicle 1:	Amtrak train No. 4
Vehicle 2:	2007 Kenworth dump truck

B. ONBOARD VIDEO RECORDER SPECIALIST

Specialist: W. Deven Chen
Electrical Engineer – Recorder Specialist
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

The NTSB Vehicle Recorder Division received the following onboard video files electronically. The files were from the Amtrak train No. 4 and captured the accident.

Video File #1:	11.04.59_11.14.59 AMTK 133.avi
Video File #2:	09.40.20_09.50.20 AMTK 166.avi

In agreement with the Investigator-In-Charge (IIC), a video group was not conducted, and a summary report was prepared.

1.0 Onboard Video Recorder Recording Description

No details were obtained as to the make and model of the train's onboard video recorder system. Both onboard video files, with audio, were 10 minutes in length, with 704 x 240 pixels at a frame rate of 30 frame per second (fps).

1.1 Time Correlation

A time correlation of the video files was not conducted, instead, the times in the report are presented in video elapsed time from the start of the recording. The times are given in the format of MM:SS, where MM stands for the number of elapsed minutes, and SS stands for the number of seconds.

D. SUMMARY OF THE VIDEO FILES

Video File #1: 11.04.59_11.14.59 AMTK 133.avi

This video recorder was mounted on the locomotive of the Amtrak train No. 4 and facing forward. Figure 1 shows the field of view of the video recorder at the beginning of the recording. The file is not presented in its original aspect ratio and is instead represented in a widescreen format as per the playback software.

Figure 1. Field of view of the 11.04.59_11.14.59 AMTK 133.avi video file at the beginning of the recording. Note that the original aspect ratio of the recorded video was formatted in widescreen by playback software.

00:01 ~ 01:12 – The train was travelling ahead.

01:13 ~ 01:22 – A series of horns sounded. The train passed an intersection at 01:22, and the horn series stopped shortly after.

01:43 ~ 01:53 – A series of horns sounded. The train passed an intersection at 01:53, and the horn series stopped shortly after.

02:09 ~ 02:19 – A series of horns sounded. The train passed an intersection at 02:19, and the horn series stopped shortly after.

03:34 ~ 03:43 – A series of horns sounded. The train passed an intersection at 03:43, and the horn series stopped shortly after.

04:03 ~ 04:13 – A series of horns sounded. As the train was approaching an intersection, the 2007 Kenworth dump truck was travelling towards the intersection from the right side of the track. The dump truck did not stop at the intersection and continued moving forward onto the track.

04:14 – The impact occurred. Figure 2 shows a screenshot just prior to the impact. A stop sign was at the intersection before the dump truck moving forward onto the track (pictured to the right).

Figure 2. Screenshot just prior to the impact. Note that the original aspect ratio of the recorded video was formatted in widescreen by playback software.

04:15 ~ 04:31 – After the impact, the train shook and continued moving forward on the track. The train came to a stop at 04:31.

The recording ended at 10:00. Nothing else pertinent to the accident investigation was noted.

Video File # 2: 09.40.20_09.50.20 AMTK 166.avi

Figure 3 shows the field of view of this video recorder. For the entire recording, the field of view does not change but wobbles slightly until the impact. The field of view suggested the video recorder was mounted outside of a train car of the Amtrak train No. 4 and was facing the train car. The audio suggested the train was travelling on a track until the impact.

Figure 3. Field of view of the 09.40.20_09.50.20 AMTK 166.avi video file.

01:19 ~ 01:20 - A long whistled train horn was audible.

01:23 – A short whistled horn was audible.

01:24 ~ 01:28 – A long whistled horn was audible.

02:10 ~ 02:21 – A series of horns sounded in this period.

03:53 ~ 04:03 – A series of horns sounded in this period.

04:23 ~ 04:33 – A series of horns sounded in this period.

04:49 ~ 04:59 – A series of horns sounded in this period.

06:14 ~ 06:24 – A series of horns sounded in this period.

06:43 ~ 06:52 – A series of horns sounded in this period.

06:55 – The impact occurred. A loud impact sound was audible.

06:56 ~ 07:11 – The field of view shook. A dust cloud covered the field of view while some objects which seem to be little rocks were flying past.

07:14 – The field of view became stable, which suggested the train stopped moving.

The recording ended at 10:00. Nothing else pertinent to the accident investigation was noted.

Submitted by:

W. Deven Chen
Electrical Engineer – Recorder Specialist