

# National Transportation Safety Board

Office of Highway Safety

Washington, DC 20594



HWY23MH004

## **HUMAN PERFORMANCE FACTORS**

Group Chair's Factual Report

October 17, 2023

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## **CRASH INFORMATION**

Location: Williamsburg, Virginia  
Date: December 16, 2022  
Time: 1:36 a.m. Eastern Standard Time  
Vehicle 1: 2000 Eldorado bus on an International 3400 chassis  
Vehicle 2: 2022 Freightliner Cascadia truck-tractor in combination with a  
2020 Great Dane 53' Dry Van Trailer

## **HUMAN PERFORMANCE FACTORS GROUP**

Group Chair Dennis J. Collins  
National Transportation Safety Board  
Washington, D.C.

## **SUMMARY**

Please refer to the *Crash Information and Crash Summary Report* in the docket for this investigation.

## **DETAILS OF THE INVESTIGATION**

The Human Performance Factors Group was formed to evaluate the performance of the drivers of the 2000 Eldorado bus and the 2022 Freightliner Cascadia truck-tractor and the effect of behavioral, toxicological, medical, operational, and environmental factors on that performance. Factual reports prepared by other NTSB investigative groups, especially the *Motor Carrier Group Chair's Factual Report* and the *Technical Reconstruction Group Chair's Factual Report*, should be consulted for information related to other aspects of the investigation, including information referenced within this report.

## 1.0 The Driver of the 2000 Eldorado Bus

### 1.1 Background

The driver of the 2000 Eldorado bus (hereafter the bus) was a 23-year-old male. He held a Virginia Class “D” non-commercial driver’s license which was suspended at the time of the crash. His license was most recently issued in December 2021, and was due to expire in August 2028. His Virginia Driver History Record<sup>1</sup> showed only the subject crash. His license was suspended in August of 2022 for “insurance monitoring”.<sup>2</sup> The bus driver was an occasional (fill-in) driver for the bus company.

### 1.2 Crash Trip

At the time of the crash the bus was returning to Norfolk, Virginia from a private event in Richmond, Virginia. The owner of the bus told NTSB investigators the bus was not being operated in commerce but rather in a personal capacity; the driver was not a paid employee for this trip.<sup>3</sup> However, when interviewed by NTSB investigators, the bus driver stated he was supposed to be paid for driving following their return to the Norfolk area.<sup>4</sup>

The bus had transported its passengers from Norfolk to Richmond for the event and was returning them home. One passenger reported in a police interview<sup>5</sup> that the bus departed Norfolk for Richmond between 7:30 p.m. and 7:50 p.m. The same passenger reported at least two vehicles “swerving” around the bus during the trip to Richmond. The bus driver reported departing the event in Richmond at some point after 12:00 a.m.

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<sup>1</sup> Human Performance Attachment - Bus Driver Virginia Driver’s Record.

<sup>2</sup> The Commonwealth of Virginia requires all motor vehicles licensed or subject to registration in Virginia to be covered by a minimum level of insurance or for the owner of the vehicle to pay an uninsured motor vehicle fee. If an uninsured vehicle is operated without insurance or payment of the fee, both the owner and operator of the vehicle are guilty of a Class 3 misdemeanor. If such operation is discovered, the licenses of the owner and operator and the registration of the vehicle may be suspended. The term “insurance monitoring” means that the bus driver was found to have owned or operated an uninsured vehicle via one of the four ways Virginia monitors vehicle insurance. See Code of Virginia [§ 46.2-707](#) (accessed June 15, 2023) and [Insurance Monitoring Methods](#) (accessed June 15, 2023).

<sup>3</sup> See *Motor Carrier Factors Group Chair’s Factual Report* in the docket.

<sup>4</sup> The driver gave an interview to NTSB investigators approximately 8 months after the crash. He did not recall many specific details of the days prior to the crash. See Human Performance Attachment - Transcript of Bus Driver Interview, available in the docket.

<sup>5</sup> Human Performance Attachment - Notes from Police Recorded Passenger Interview.

### 1.3 Activities Prior to the Crash

Investigators used information from his interview with NTSB investigators, the bus driver's cell phone records,<sup>6</sup> and a police interview<sup>7</sup> to establish the driver's activities prior to the crash; see Table 1.

**Table 1. Bus Driver Activities.**

December 14, 2022		
Time (EST)	Activity	Source
1:14 p.m.	Driver receives incoming call (first cell phone activity of day)	Cell records <sup>8</sup>
9:39 p.m.	Driver receives incoming call (last cell phone activity of day)	Cell records
December 15, 2022		
Time (EST)	Activity	Source
1:37 a.m.	Driver receives incoming call (first cell phone activity of day)	Cell records
10:00 a.m.	Driver typically awakes	NTSB Interview
~ 6:00 p.m.	Driver picks up bus	NTSB interview
unknown	Driver arrives at owner's house with bus	NTSB interview
unknown	Driver gets gas on Hampton Blvd.	NTSB interview
7:30-7:50 p.m.	Bus departs Norfolk, VA for Richmond, VA	Police interview
~ 11:00 p.m.	Bus arrives at venue	NTSB interview
~ 12 midnight	Bus departs Richmond for Norfolk	NTSB interview
11:57 p.m.	Driver receives incoming call (last cell phone activity of day)	Cell records
December 16, 2022		
Time (EST)	Activity	Source
12:11 a.m.	Driver makes outgoing call (first cell phone activity of day)	Cell records
1:38 a.m.	Police reported time of crash	Police report

### 1.4 Health

When interviewed by NTSB investigators, the bus driver described his health as "normal", both in general and prior to the crash. He stated he was not under the care of a physician for any medical conditions at the time of the crash.

<sup>6</sup> Human Performance Attachment - Bus Driver Cell Records.

<sup>7</sup> See *Notes from Police Recorded Passenger Interview*.

<sup>8</sup> To be counted in this table, call activity had to be either outgoing or have an elapsed time (connected time) of greater than one minute and SMS activity had to be outgoing.

## 1.5 Medications and Supplements

A canvas of pharmacies in the area of the driver's residence did not reveal any current prescriptions for the bus driver. In an interview with the NTSB, the bus driver stated he does not take any medications.

## 1.6 Alcohol and Drugs

No information on the bus driver's consumption of alcohol, use of prescription or over-the-counter medications, or use of illicit drugs was obtained. No signs of impairment were observed by police officers who responded to the crash.

## 1.7 Post-Crash Toxicology

Following the crash, the bus driver was treated at Riverside Regional Medical Center. While there, blood was drawn for diagnostic purposes with one sample sent to Riverside Doctor's Hospital. The Virginia State Police (VSP) acquired the sample at Riverside Doctor's Hospital for their investigation. As detailed in the *Medical Specialist's Factual Report*,<sup>9</sup> no ethanol or other tested-for drug or drug classes were detected in the bus driver's blood specimen.

## 1.8 Psychological Factors

The bus driver made no statements to police officers immediately following the crash indicating he was experiencing any psychological issues.

## 1.9 Training and Experience

The bus driver did not hold a commercial driver's license or "P" (passenger) endorsement despite needing both to legally operate a vehicle capable of carrying 16 or more passengers. No information on any training the driver may have received for his non-commercial license was located and the bus company did not have a training program.<sup>10</sup> When interviewed by the NTSB, the driver stated he has held a "regular" driver's license for four years.

The Virginia Driver's Manual<sup>11</sup> mentions slower speed on page 16:

*"You may drive slower than the speed limit, as long as you don't impede the normal movement of traffic, but it is illegal to drive any faster."*

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<sup>9</sup> Available in the [docket](#) for this investigation.

<sup>10</sup> See *Motor Carrier Factors Group Chair's Factual Report* in the docket.

<sup>11</sup> See [DMV39.pdf \(virginia.gov\)](#), accessed March 22, 2023.

The Commonwealth of Virginia uses the July 2017 version of the Commercial Driver License Manual<sup>12</sup> published by AAMVA in conjunction with a Virginia Supplement. The Commercial Driver License Manual states:

*"If you must drive slowly, alert following drivers by turning on your emergency flashers if it is legal. (Laws regarding the use of flashers differ from one state to another. Check the laws of the states where you will drive.)"*

The Code of Virginia, Title 46.2, Subtitle III, Chapter 10 governs motor vehicle and equipment safety; title 46.2-1040 specifically covers hazard lights and reads (in part):

*"All four turn signals **may** be flashed simultaneously on a vehicle slowed or stopped at the scene of a traffic hazard, when traveling as part of a funeral procession, **or when traveling at a speed of thirty miles per hour or less.**"* (emphasis added)

## **1.10 Distractions**

Investigators drove through the location of the crash under conditions of darkness and observed no distracting features in the environment. Records for the bus driver's cell phone shows his last call activity before the crash was at 12:11 a.m. EST and his last texting activity before the crash was at 5:45 p.m. on December 15, 2022.<sup>13</sup> The records indicate general data activity at the time of the crash.

## **1.11 Sleep and Fatigue**

To estimate the time the bus driver had available for rest in the three days prior to the crash, investigators combined the cell phone data and police information referenced for Table 1; this information is depicted in Figure 1 and Table 2. To count as available for rest, there had to be no cell phone activity in that half-hour. Additionally, periods of no activity only thirty minutes in length were not counted as available for rest due to the extremely limited benefits such a short period of rest would provide. It should be noted that time **available** for rest is not necessarily time **used** for rest. No information on the sleep actually obtained by the bus driver was obtained.

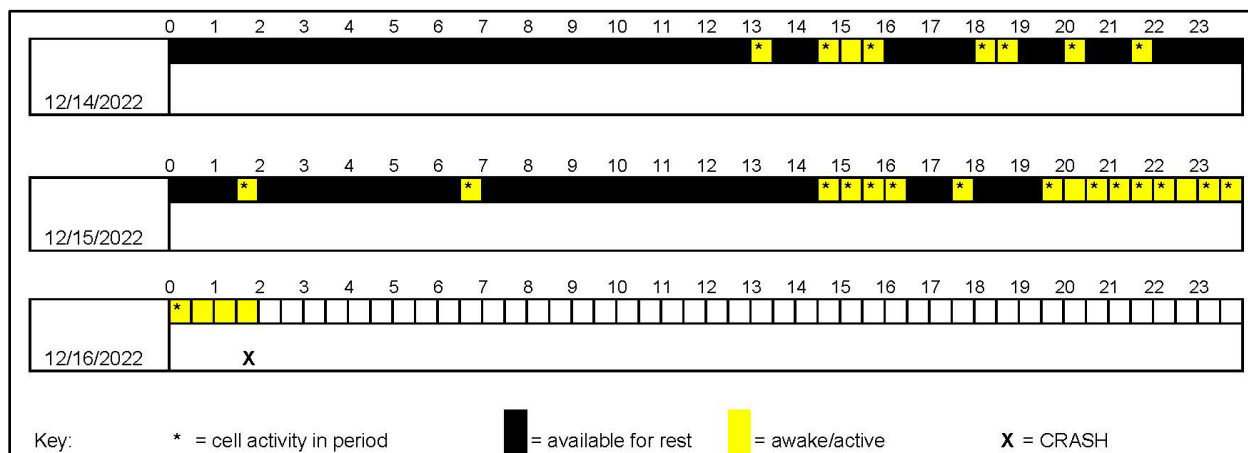
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<sup>12</sup> See [dmv60a.pdf \(virginia.gov\)](#), accessed March 22, 2023.

<sup>13</sup> See *Bus Driver Cell Records*.



**Figure 1. Bus Driver Approximate Time Available for Rest**



**Table 2. Bus Driver Approximate Time for Available Rest**

From		To		
Date	Time	Date	Time	Duration
December 14	12:00 a.m.	December 14	1:00 p.m.	13 hours
December 14	1:30 p.m.	December 14	2:30 p.m.	1 hour
December 14	4:00 p.m.	December 14	6:00 p.m.	2 hours
December 14	7:00 p.m.	December 14	8:00 p.m.	1 hour
December 14	8:30 p.m.	December 14	9:30 p.m.	1 hour
December 14	10:00 p.m.	December 15	1:30 a.m.	3 hr 30 min
December 15	2:00 a.m.	December 15	6:30 a.m.	4 hr 30 min
December 15	7:00 a.m.	December 15	2:30 p.m.	7 hr 30 min
December 15	4:30 p.m.	December 15	5:30 p.m.	1 hour
December 15	6:00 p.m.	December 15	7:30 p.m.	1 hr 30 min

**1.12 Driver Interviews/Statements**

Following the crash, the bus driver provided a written statement to the VSP.<sup>14</sup> In that statement, the driver indicated the crash occurred at 1:39 a.m. and that he was in the far-right lane traveling at 40 miles per hour (mph). He indicated he was not wearing his seatbelt, and he was injured. The bus driver stated he checked his driver’s side mirror and saw a semi-truck approaching “very fast” and “about 80 mph”. He further stated he began to change lanes, heard a big bang, and was tumbling around the bus. He further stated he found himself on the ground.

In August of 2023, the bus driver was interviewed by NTSB investigators in the presence of his attorney. In that interview, the bus driver stated he had been a part-time bus driver for Futrell’s for approximately 2 years but had only driven the bus

<sup>14</sup> Human Performance Attachment – Bus Driver’s Written Statement to Police.

approximately 7 times. The bus involved in the crash was the only vehicle he had driven for the company. He stated he had agreed to drive to Richmond about two weeks before the trip and expected to be paid for doing so.

When specifically asked, the bus driver stated he had cleaned and inspected the bus using a checklist prior to driving to the owner's house and the only issue was that music could not be played using the Bluetooth system. After picking up passengers at multiple locations, they departed Norfolk and arrived in Richmond at about 11:00 p.m. When asked, he stated the bus was "running fine" and that his speed was "mid-fifties" while going to Richmond.

After arriving in Richmond, the passengers entered the event; the bus driver did as well but stated he only stayed inside for 10 to 15 minutes before returning to the bus. The passengers returned to the bus and the driver began driving back to Norfolk at about midnight. The owner of the bus was a passenger and was seated in the area of the loading door during the trip back to Norfolk.

When asked about the crash, the driver stated he noticed the truck coming up behind him at what he described as "highway speeds". Before he could change lanes, the truck hit the bus. He again stated his speed was in the mid-fifties. He continued to state this was his speed, even after being told video from the truck seemed to indicate his speed was much less prior to the collision. When asked, the driver denied being tired at the time of the crash. He stated it was raining at the time and the ground was wet.

## **2.0 The Driver of the 2022 Freightliner Cascadia Truck-tractor**

### **2.1 Background**

The driver of the 2022 Freightliner Cascadia Truck-tractor was a 61-year-old male. He held an Alabama Class "A" Commercial Driver's License (CDL) with a Tank Vehicle endorsement and a Corrective Lenses restriction. His license was issued in September 2022 and was due to expire in June 2026. The motor vehicle record for the driver<sup>15</sup> showed four convictions and one withdrawal. The convictions were for failure to appear (2010), failure to obey a sign/traffic control device (2012), operating without required equipment (2019), and not using a seat belt properly (2020). The withdrawal was in 2010 and was related to the failure to appear conviction. His license was reinstated in January of 2011.

### **2.2 The Crash Trip**

#### **2.2.1 Virginia State Police Interview**

In an interview with the VSP the day of the crash,<sup>16</sup> the truck driver stated he and his co-driver had delivered a load in Hannibal, Missouri at approximately 11:00 a.m. on December 15<sup>th</sup>. They then proceeded to a shipper in St. Louis, Missouri, arriving between 2:00 and 2:30 p.m. the same day. They were going from the St. Louis shipper to a company drop yard in Chesapeake, Virginia when the crash occurred.

The truck driver stated he had gone from the sleeper berth to on-duty approximately 1 to 1.5 hours before the crash. At the time he went on duty, the truck was either in a rest area or at a Pilot gas station. He had dropped his co-driver off at this location.

When asked about the circumstances of the crash, the truck driver stated he was in the right lane and did not see the bus until just prior to impact. He stated he had no time to brake or swerve. When asked if the bus came from the right or left, the truck driver reiterated he did not see the bus until just before impact and then stated neither he nor the bus tried to change lanes.

#### **2.2.2 NTSB Interview**

The truck driver was subsequently interviewed by NTSB investigators on May 12, 2023.<sup>17</sup> In that interview, the driver stated he was traveling alone; he did not have a co-driver. He further stated his employer would manipulate the digital logs to indicate

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<sup>15</sup> Human Performance Attachment - Truck Driver MVR.

<sup>16</sup> Human Performance Attachment - Notes from Truck Driver Police Interview.

<sup>17</sup> See *Truck Driver Interview Transcript* in the docket for this investigation.

there was a second driver.<sup>18</sup> His employer also instructed him to state he had recently dropped his co-driver off when inspected roadside or when stopped at scales.

The truck driver told NTSB investigators he had been driving approximately 1 to 1.5 hours at the time the crash occurred and that he had begun driving after approximately five hours of sleep.

### **2.2.3 Interview with the Co-Driver**

When interviewed by NTSB investigators on December 20, 2022,<sup>19</sup> the person identified as the co-driver stated his employment with the motor carrier had been terminated on December 8, 2022, about two weeks prior to the crash. Further, he stated he had never been a co-driver for the crash driver, and he had been a local driver, only operating between Richmond, Virginia and the Outer Banks of North Carolina for the two years prior to his termination. He specifically denied knowing the crash driver or ever being in the truck with him. When asked, he stated he did not share his ELD login information with anyone.

## **2.3 Post-crash Examination of Truck Cab**

NTSB investigators examined the cab of the truck tractor after the crash. A number of bottles of medication were found; for more information, see Section 2.6 of this report. A cooler was secured to the passenger seat with a ratcheting tie-down strap and there was no mattress in the top bunk of the sleeper berth; that space was occupied by vehicle parts and storage containers.

## **2.4 Activities Prior to the Crash**

Investigators examined the truck driver's cell phone records,<sup>20</sup> electronic logging data,<sup>21</sup> his interview with the police,<sup>22</sup> and his NTSB interview<sup>23</sup> for information on the driver's activities in the three days before the crash. This information is presented in Table 3. All entries have been adjusted to Eastern Standard Time (the time zone of the crash). Given driver's admission there was no co-driver, all driving and on-duty time from the ELD was attributed to the driver involved in the crash.

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<sup>18</sup> For additional details on the reported manipulation of log data, please see the *Motor Carrier Group Chairman's Factual Report* in the [docket](#) for this investigation.

<sup>19</sup> Human Performance Attachment - Interview Summary: Co-Driver.

<sup>20</sup> Human Performance Attachment - Truck Driver Cell Records.

<sup>21</sup> The truck driver used an Electronic Logging Device, or ELD, to record his hours-of-service. For more information see the *Motor Carrier Group Chairman's Factual Report*, available in the [docket](#). Entries were adjusted to the nearest quarter-hour.

<sup>22</sup> See *Notes from Truck Driver Police Interview*.

<sup>23</sup> See *Truck Driver Interview Transcript*, available in the docket for this investigation.

**Table 3. Truck Driver Activities.**

December 13, 2022		
Time (EST)	Activity	Source
12 midnight	Day begins logged in berth	Electronic log
5:00 a.m.	Activity logged	Electronic log
5:45 a.m.	Logged in sleeper berth	Electronic log
6:15 a.m.	Activity logged	Electronic log
6:12 a.m.	Driver makes an outgoing call (first of day)	Cell records <sup>24</sup>
6:45 a.m.	Logged in sleeper berth	Electronic log
8:30 a.m.	Activity logged	Electronic log
12:15 p.m.	Logged in sleeper berth	Electronic log
1:30 p.m.	Activity logged	Electronic log
1:45 p.m.	Logged in sleeper berth	Electronic log
2:00 p.m.	Activity logged	Electronic log
5:00 p.m.	Logged in sleeper berth	Electronic log
6:30 p.m.	Activity logged	Electronic log
10:31 p.m.	Driver sends outgoing text (last of day)	Cell records
December 14, 2022		
Time (EST)	Activity	Source
12 midnight	Day begins with activity	Electronic log
2:17 a.m.	Driver sends outgoing text (first of day)	Cell records
2:45 a.m.	Logged in sleeper berth	Electronic log
4:00 a.m.	Activity logged	Electronic log
5:45 a.m.	Logged in sleeper berth	Electronic log
7:15 a.m.	Activity logged	Electronic log
8:25 a.m.	Driver makes outgoing call (first of day)	Cell records
8:45 a.m.	Logged in sleeper berth	Electronic log
9:00 a.m.	Activity logged	Electronic log
12:30 p.m.	Logged in sleeper berth	Electronic log
2:30 p.m.	Activity logged	Electronic log
4:00 p.m.	Logged in sleeper berth	Electronic log
6:15 p.m.	Activity logged	Electronic log
7:31 p.m.	Driver makes outgoing call (last of day)	Cell records
7:55 p.m.	Driver sends outgoing text (last of day)	Cell records
9:15 p.m.	Logged in sleeper berth	Electronic log
11:15 p.m.	Activity logged	Electronic log

<sup>24</sup> To be counted in this table, call activity had to be either outgoing or have an elapsed time (connected time) of greater than one minute and SMS activity had to be outgoing.

December 15, 2022		
Time (EST)	Activity	Source
12 midnight	Day begins activity logged	Electronic log
12:15 a.m.	Logged in sleeper berth	Electronic log
12:20 a.m.	Driver makes outgoing call (first of day)	Cell records
12:30 a.m.	Activity logged	Electronic log
2:00 a.m.	Logged in sleeper berth	Electronic log
5:00 a.m.	Activity logged	Electronic log
7:45 a.m.	Logged in sleeper berth	Electronic log
9:00 a.m.	Activity logged	Electronic log
12 noon	Load delivered in Hannibal, MO	Police interview
2:30 p.m.	Logged in sleeper berth	Electronic log
2:45 p.m.	Activity logged	Electronic log
3:00-3:30 p.m.	Arrival at shipper in St. Louis, MO	Police interview
4:15 p.m.	Logged sleeper / off duty	Electronic log
5:15 p.m.	Activity logged	Electronic log
5:30 p.m.	Logged sleeper / off duty	Electronic log
~7:00 p.m.	Driver goes to sleep in sleeper berth	NTSB interview
11:27 p.m.	Driver makes outgoing call (last of day)	Cell records
December 16, 2022		
Time (EST)	Activity	Source
12 midnight	Driver awakes	NTSB interview
12 midnight	Driver activity logged	Electronic log
12:38 a.m.	Driver sends outgoing text (first of day)	Cell records
1:23 a.m.	Driver sends outgoing text (last before crash)	Cell records
1:38 a.m.	Reported time of crash	Police Report

## 2.5 Health

As detailed in the *Medical Specialist's Factual Report*, the truck driver reported no medical conditions in his most recent commercial driver medical exam, in September of 2022. The examiner documented corrected visual acuity and field of vision within regulatory limits. The driver's hearing was reported as normal.

When interviewed by the NTSB, the driver described his health as good and stated he does not see doctors. He stated he has training in nursing and monitors his own health. He stated he takes supplements and did, at one time, have a prescription for Metformin<sup>25</sup> but he no longer takes that medication. He described both his vision and hearing as good, with no issues. He does wear glasses, has a glasses restriction on

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<sup>25</sup> Metformin is prescribed to control the level of sugar in the blood. See [Metformin: MedlinePlus Drug Information](#), accessed May 31, 2023. The truck driver stated he took the Metformin one or two times as part of testosterone therapy but stopped taking it. He specifically denied taking it for diabetes.

his driver's license, and stated he was wearing his glasses at the time of the crash. He stated he did not have any allergies. He gave his weight as 195 pounds and his height as 6 feet.

## 2.6 Medications and Supplements

When interviewed by the VSP,<sup>26</sup> the truck driver stated he does not take any prescription medication but does take supplements. The supplements were not named in that interview. During an examination of the truck, NTSB investigators found forty bottles. The labels on three bottles indicated they contained over-the-counter medications and the labels on thirty-seven bottles indicated they contained supplements. The medications and supplements indicated on the labels are listed in Table 4.

**Table 4. Supplement & Medication Bottles Found in Truck**

Supplement	Supplement
Kelp (iodine)	B-12
Activated charcoal	Probio slim apple cider vinegar
Hydroxycut hardcore	Vitamin D3 & K2
Fish, flax, & borage oil (2)	Ashwagandha gummies
Saw palmetto	Superfruits gummies
Resveratrol	Enzyte
Ginger root	Swarm extreme energizer (2)
B17 amygdalin	Dandelion root
Turmeric curcumin	Nettle
Bee caps	Better turmeric
Ocuvite	Smarter greens
Cool cayenne	Plantain
Biotin	Cold and flu severe
Holy basil	Melatonin (2 bottles)
Hawaiian spirulina	Centrum Silver
Ubiquinol	Milk thistle
B complex & B-12	CoQ10
Bayer low dose aspirin	Adult multivitamin
Aleve	

In his interview with the NTSB, the truck driver stated he only took four or five of these on a regular basis. The majority of these products are marketed as having various benefits; two of particular note are melatonin and Swarm extreme energizer.

Melatonin is a hormone produced by the brain in response to darkness that helps with the timing of the body's circadian rhythms (24-hour internal clock) and with

<sup>26</sup> See Notes from Truck Driver Police Interview.

sleep. It is used to help with jet lag, delayed sleep-wake phase disorder, some sleep disorders in children, and anxiety before and after surgery.<sup>27</sup>

Swarm extreme energizer is sold as an energy-boosting product.<sup>28</sup>

In his NTSB interview, the truck driver stated he does consume energy drinks.

## 2.7 Alcohol and Drugs

In an interview with the VSP,<sup>29</sup> the truck driver stated he does not take drugs and drinks alcohol very infrequently, which he describes as “4-5 beers a year”. He stated he had not consumed any alcohol prior to the crash.

When interviewed by the NTSB, he again described his alcohol consumption as “a few beers a year”. When asked the last time he consumed alcohol before the crash, he stated it was approximately a week prior.

The truck driver, as an interstate commercial driver, is subject to the drug testing requirements of the Federal Motor Carrier Safety Administration (FMCSA) as specified in 49 CFR Part 382.<sup>30</sup> Information obtained by the Motor Carrier Group Chairman indicates the truck driver underwent two pre-employment-controlled substance tests with his current employer; both tests returned negative results.<sup>31</sup>

## 2.8 Post-Crash Toxicology

Following the crash, the truck driver was treated at Riverside Regional Medical Center. While there, blood was drawn for diagnostic purposes. The Virginia State Police (VSP) acquired the sample for their investigation. As detailed in the *Medical Specialist's Factual Report*, no ethanol or other tested-for drug or drug classes were detected in the bus driver's blood specimen.

## 2.9 Psychological Factors

When asked by the VSP,<sup>32</sup> the truck driver stated he returns home on an irregular schedule but had been home in Alabama for 4 to 5 days the week prior to the crash. He also stated he is married.

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<sup>27</sup> [Melatonin: What You Need To Know | NCCIH \(nih.gov\)](#), accessed June 6, 2023.

<sup>28</sup> [Yellow Swarm © | Stacker2](#), accessed June 6, 2023.

<sup>29</sup> See *Notes from Truck Driver Police Interview*.

<sup>30</sup> See [eCFR :: 49 CFR Part 382 -- Controlled Substances and Alcohol Use and Testing](#), accessed on January 19, 2023.

<sup>31</sup> See the *Motor Carrier Group Chairman's Factual Report* in the [docket](#) for additional information.

<sup>32</sup> See *Notes from Truck Driver Police Interview*.



When interviewed by the NTSB, the driver was asked if he had experienced any life stressors<sup>33</sup> in the three months prior to the crash; he stated he had not.

## **2.10 Training and Experience**

As described in the *Motor Carrier Factors Group Chair's Factual Report*, the truck driver attended a truck driving school and had approximately 16 and a half years of experience driving commercial vehicles. In that time, the driver had been employed by approximately 20 motor carriers. The truck he was driving was assigned to him and had been his since his employment with his company. He further stated he was "very" familiar with the Interstate 64 in the area where the crash occurred.

## **2.11 Distractions**

In an interview with the VSP,<sup>34</sup> the truck driver stated he was not using his cell phone at the time of the crash but was listening to an audio book. Records from the truck driver's cell provider indicate he did not make or receive a call or text message within 10 minutes of the reported time of the crash.

When interviewed by the NTSB, the driver stated the truck was equipped with an AM/FM radio. He stated he did not see anything unusual in the environment prior to the crash.

As noted in Section 1.10 of this report, NTSB investigators examined the area surrounding the crash and noted no distracting elements in the environment.

## **2.12 Sleep and Fatigue**

When interviewed by the NTSB, the driver stated he did not keep to a specific sleep pattern but would stop when he felt tired. He further stated that he preferred to drive at night. He stated he sleeps well, has no trouble falling asleep, and uses an alarm to wake up. He specifically stated that he slept for approximately five hours shortly before the crash and when he began to drive that morning he felt "100 percent".

To estimate the time the truck driver had available for rest in the three days prior to the crash, investigators combined the data from the ELD, the driver's cell phone records, and interviews; this information is depicted in Figure 2 and Table 5. To count as available for rest, the driver had to be logged off duty or in the sleeper berth and there had to be no cell phone activity in that half-hour. Additionally, periods of no activity only thirty minutes in length were not counted as available for rest due to the

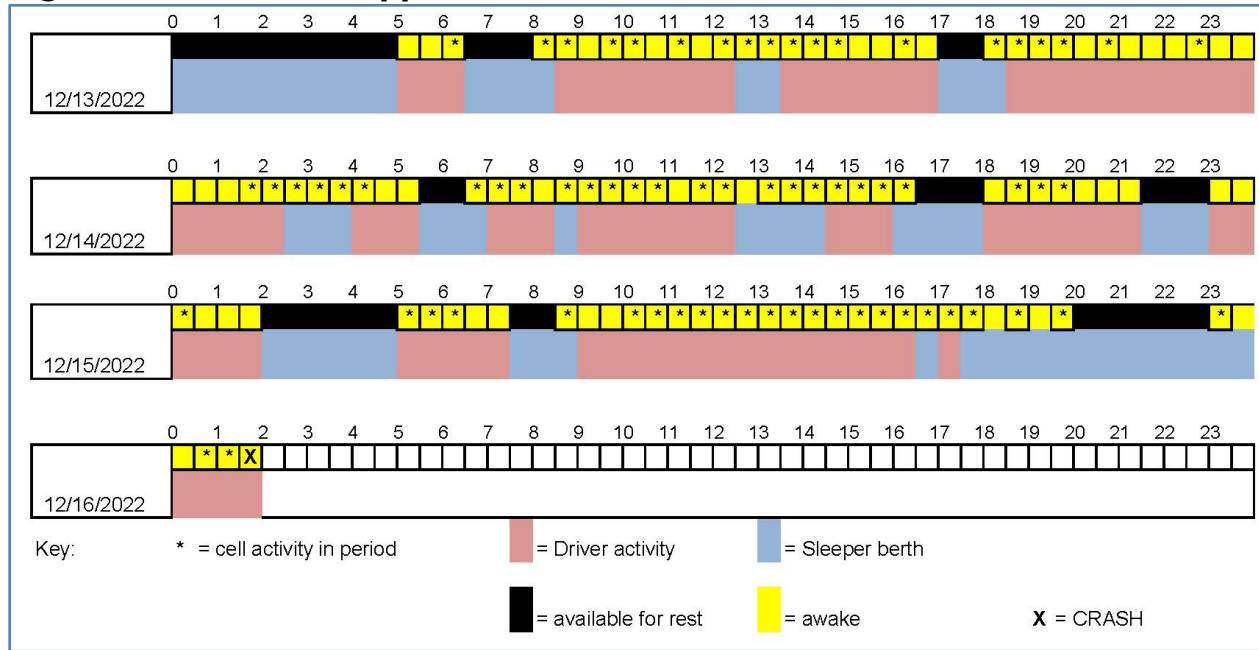
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<sup>33</sup> The driver was specifically asked about marriage, divorce, marital problems, birth of a child, death in the family, a change in employment, financial issues, and major illness of a family member.

<sup>34</sup> See *Notes from Truck Driver Police Interview*.

extremely limited benefits such a short period of rest would provide. It should be noted that time **available** for rest is not necessarily time **used** for rest.

**Figure 2. Truck Driver Approximate Time for Rest**



**Table 5. Truck Driver Approximate Time for Rest**

From		To		Duration
Date	Time	Date	Time	
December 13	Midnight	December 13	5:00 a.m.	5 hours
December 13	6:30 a.m.	December 13	8:00 a.m.	1 hour 30 min
December 13	5:00 p.m.	December 13	6:00 p.m.	1 hour
December 14	5:30 a.m.	December 14	6:30 a.m.	1 hour
December 14	4:30 p.m.	December 14	6:00 p.m.	1 hour 30 min
December 14	9:30 p.m.	December 14	11:00 p.m.	1 hour 30 min
December 15	2:00 a.m.	December 15	5:00 a.m.	3 hours
December 15	7:30 a.m.	December 15	8:30 a.m.	1 hour
December 15	8:00 p.m.	December 15	11:00 p.m.	3 hours

The total time the truck driver had available for rest each day is summarized in Table 6.

**Table 6. Truck Driver Daily Time for Rest**

Date	Total Time
December 13, 2022	7 hours 30 minutes
December 14, 2022	4 hours
December 15, 2022	7 hours

## 2.13 Video from Truck

The truck was equipped with a Samsara forward facing video camera system.<sup>35</sup> Investigators initially obtained video from the system which started approximately 5 seconds before the crash; this video was analyzed to provide information on vehicle speeds.<sup>36</sup> Additional video of approximately 3 additional minutes prior to the crash was viewed by the Human Performance Group Chairman and the following observations were made:

**Table 7. Observations from Truck Video**

Video Time	Observation
0:00	Truck is in the rightmost lane
0:00	The truck is moving slowly to the right, as evidenced by the position of the white edge line. The position of the edge line suggests the truck has entered the shoulder.
0:11	The truck returns to a normal lane position
0:19	The truck crosses the white edge line
0:34	The truck returns to a normal lane position
0:37	The truck crosses the white edge line
0:44	The truck returns to a normal lane position
1:16	The truck crosses the white edge line
1:38	The truck returns to a normal lane position
1:48	The truck crosses the white edge line
1:52	The truck returns to a normal lane position
2:09	The truck crosses the white edge line
2:26	The truck returns to a normal lane position
2:31	The truck crosses the white edge line
2:44	The truck returns to a normal lane position
2:55	The truck crosses the white edge line The rear lights of the bus are visible; its emergency flashers are off.
3:00	The truck returns to a normal lane position
3:03	The truck crosses the white edge line
3:05	The crash occurs

As shown in Table 7, the truck appeared to cross the white shoulder line nine times in the three minute video. A frame<sup>37</sup> from the video depicting the truck across the white edge line is shown in Figure 3.

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<sup>35</sup> According to Samsara's website, the camera records in 1080p, 30 frames per second, with a 121° field of view. See [Samsara - CM31](#) (accessed May 12, 2023).

<sup>36</sup> See *Video Study*, available in the [docket](#).

<sup>37</sup> The frame was taken from the first crossing of the white line, at approximately 3 seconds from the start of the video.



**Figure 3. Frame from Video Showing Truck Across Edge Line**

### **LIST OF ATTACHMENTS**

Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment  
Human Performance Attachment

Bus Driver Virginia Driver's Record  
Transcript of Bus Driver Interview  
Notes from Police Recorded Interview  
Bus Driver Cell Records  
Bus Driver's Written Statement to Police  
Truck Driver MVR  
Notes from Truck Driver Police Interview  
Notes from Interview with Co-Driver  
Truck Driver Cell Records.

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