National Transportation Safety Board
Office of Railroad, Pipeline and Hazardous Materials
Washington, DC 20594

RRD23LR007

SYSTEM SAFETY GROUP

Group Chair's Factual Report

September 27, 2023

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A. ACCIDENT

Location: Cleveland, OH
Date: March 7, 2023
Time: 1:08 a.m. local time
5:08 a.m. universal time
Train: C75B106

B. SYSTEM SAFETY GROUP

Mike Hoepf (group chairman)
National Transportation Safety Board

Michael Alamprese
Federal Railroad Administration

David Gooden
Norfolk Southern Railway

Rocky Agozzino
Stein, LLC

Shawn Lawton
Brotherhood of Locomotive Engineers and Trainmen

Joseph Ciemny
International Association of Sheet Metal, Air, Rail and Transportation Workers

Don Westerhoff
Cleveland-Cliffs Cleveland Works LLC

C. SUMMARY

On March 7, 2023, about 1:08 a.m. local time, a Norfolk Southern Railway (henceforth referred to as NS, or Norfolk Southern) conductor on NS train C75B106 was killed when the train he was riding collided with a dump truck as they simultaneously entered a private highway–railroad grade crossing (private grade crossing) in the Cleveland-Cliffs Cleveland Works LLC (henceforth referred to as Cleveland-Cliffs) steel plant in Cleveland, Ohio. The conductor was riding on the leading railcar during a shoving movement when he was crushed between the railcar and the dump truck during the collision. The conductor was using a lantern and it was illuminated at the time of the accident.

The crew of train C75B106 consisted of an engineer in the locomotive cab and the conductor. The train was composed of 1 locomotive and 12 mixed railcars: 4 residue tank cars and 8 empty covered hopper cars. The dump truck was driven by a Stein, LLC employee and was hauling limestone at the time of the collision. Cleveland-Cliffs surveillance camera data reviewed by National Transportation Safety Board (NTSB) investigators show the dump truck traveling southwest through the plant, stopping prior to entering the private grade crossing, and then proceeding through the crossing. The truck driver said that he did not see the train. Based on event recorder data, the train was traveling about 10 mph at the time of the collision; the maximum authorized timetable speed within the steel plant was 10 mph. The private grade crossing where the accident occurred was equipped with railroad crossbucks and stop signs facing both directions of approach.

D. FACTUAL INFORMATION

1.0 Territory

The Cleveland Belt Subdivision is located on Norfolk Southern' s Keystone Division. The track extends from the Norfolk Southern Campbell Road Yard to multiple industries that its services in the Cleveland area. The maximum authorized timetable speed for freight trains in the accident location is 10 mph.

2.0 Video Review

During the on-scene portion of the investigation, the system safety group convened to create a timeline, using two sources. One was the event recorder data from the C75 locomotive NS 5813. The other was surveillance video provided by Cleveland-Cliffs, which shows the collision between the truck and train at the crossing. The event recorder data and video timestamps were similar, within about 1 second. The timeline shown below is intended only to provide an approximate relative timeframe:

Time	Event
1:07:59	Train moving at 10 mph
1:08:27	Truck stops at stop sign
1:08:32	Truck begins movement from stop sign toward the private crossing
1:08:35	Train and truck collide within private grade crossing; train speed is about 10 mph at time of impact
1:08:43	Train comes to stop. Note that the train traveled about 35' after the collision with the truck before it stopped.

3.0 Method of Operation

In the vicinity of the accident area, NS authorizes train movements through coordination with the Norfolk Southern Yardmaster located at the Rockport Yard in Cleveland, Ohio. Train movements on the Cleveland Belt Subdivision are governed by operating rules, special instruction, timetable instructions, and Yardmaster instructions.

Figure 1. This photo was taken by the system safety group chairman during the on-scene portion of the investigation. It shows the final resting place of the truck and train. The front right of the truck contacts the side of a railcar.

4.0 Operating Rules

After the accident, NS issued a serious incident notice.[1] Contained in the notice is a section titled "Rules for Discussion." Operating Rule 120 – Cars Not Headed By an Occupied Engine over a Highway-Rail Grade Crossing is included. The wording of this rule is:

(a) "When cars not headed by an occupied engineer are moved over a:

- *Public crossing*
- *Private crossing located outside the physical confines of a rail yard*
- *Pedestrian crossing located outside the physical confines of a rail yard*
- *Yard access crossing*

A member of the crew must be on the ground at the crossing to warn traffic until the leading end has passed over the crossing. Rail movements over the crossing will be made only on proper signal from the employee.

(b) These actions are not required if the crossing is clear, and:

1. *Crossing gates are in the fully lowered position, and are not known to be malfunctioning; or*
2. *The crossing is equipped with flashing lights, crossbucks, or stop signs and it is clearly seen that no traffic is approaching or stopped at the crossing, and the leading end of the movement over the crossing does not exceed 15 MPH; or*
3. *A qualified employee, other than a crewmember, with the ability to communicate with trains is stationed at the crossing to warn traffic; or*
4. *The crossing has been rendered inaccessible to highway motor vehicles."*

Stein, LLC has guidance on railroad safety, which reads in part:[2]

> *"Trains have the right of way – you and your piece of equipment are "trespassing" when you enter working areas around tracks or move over a crossing."*

[1] Document: NS Serious Incident Notice
[2] Document: Stein Companies Railroad Safety

5.0 Norfolk Southern Engineer

5.1 Work History

The Norfolk Southern (NS) engineer was hired on April 15, 1999.[3] His most recent performance evaluation and knowledge assessment test evaluation occurred on September 9, 2021, which he passed (as required for recertification).[4] The engineer's training records were reviewed, which showed that between 2020 and 2023 he received training pertaining to a variety of topics, including switches and derails, hazardous materials, signals, distributed power, and operating rules.[5] The engineer's discipline report from Norfolk Southern was reviewed and no serious safety issues were found in the five years prior to the accident. The engineer's recent efficiency test records were reviewed, which showed an assortment of testing occurred between September 13, 2022, and February 1, 2023.[6] The engineer was found to be compliant with all test criteria. There were 8 tests on February 1, 2023, including train movement, stop signals, shove moves, restricted speed, alcohol and drugs, communications, blue signals, and authorized speed.

[3] Document: NS Email Hire Dates
[4] Document: Engineer Certification
[5] Document: Engineer Training
[6] Document: Engineer Efficiency Tests

5.2 Work Schedule

The engineer reported for work at 6:30 pm on the day before the accident, which occurred at 1:08 am on March 7, 2023.[7] He had been on duty for about 6 hours and 38 minutes when the accident occurred. Prior to the start of that shift, he had been off duty for about 63 hours and 52 minutes.

Military	Local Clock Time	Local Date												
		2/22/2023	2/23/2023	2/24/2023	2/25/2023	2/26/2023	2/27/2023	2/28/2023	3/1/2023	3/2/2023	3/3/2023	3/4/2023	3/5/2023	3/6/2023	3/7/2023
0:00	12:00 00 AM	12:50 AM													
1:00	1:00 00 AM														1 08 AM
2:00	2:00 00 AM			2:33 AM	2:35 AM				2:33 AM			2:38 AM			
3:00	3:00 00 AM							3:09 AM		3 08 AM	3:39 AM				
4:00	4:00 00 AM														
5:00	5:00 00 AM														
6:00	6:00 00 AM		6:38 AM												
7:00	7:00 00 AM														
8:00	8:00 00 AM														
9:00	9:00 00 AM														
10:00	10:00 00 AM														
11:00	11:00 00 AM														
12:00	12:00:00 PM														
13:00	1:00:00 PM														
14:00	2:00:00 PM														
15:00	3:00:00 PM														
16:00	4:00:00 PM														
17:00	5:00:00 PM														
18:00	6:00:00 PM	6:30 PM	6:30 PM	6:30 PM			6:30 PM	6:30 PM	6:30 PM	6:30 PM	6:30 PM			6:30 PM	
19:00	7:00:00 PM														
20:00	8:00:00 PM														
21:00	9:00:00 PM														
22:00	10:00:00 PM														
23:00	11:00:00 PM														
	Time (hh:mm)	12:08	8:03	8:05			8:39	8:03	8:38	9:09	8:08			6:38	
	Time Away (hh:mm)	17:40	11:52	15:57			63:55	15:21	15:57	15:22	14:51			63:52	

Table 1. Engineer Work Schedule Preceding the Accident. Hours worked are generally shown in green/outlined blocks that correspond to the 24 hours of the day (y-axis). The specific shift start and end times are written at the top and bottom of the green/outlined blocks. The estimated accident time (1:08 a.m.) is shown in orange. At the bottom of the table, 'Time' indicates the total shift time, and 'Time Away' indicates the total time between shifts.

[7] Document: Engineer Timesheet

6.0 Norfolk Southern Conductor

6.1 Work History

The NS conductor was hired on October 21, 2004.[8] His most recent performance evaluation and knowledge assessment test evaluation occurred on March 29, 2022, which he passed (as required for recertification).[9] The conductor's training records were reviewed, which showed that between 2020 and 2023 he received training pertaining to a variety of topics, including switches and derails, safety rules, hazardous materials, and slips trips and falls.[10] The conductor's discipline report from Norfolk Southern was reviewed.[11] Multiple incidents were identified in the five years prior to the accident that were noted as serious, though none pertained to grade crossing safety. The conductor's recent efficiency test records were reviewed, which showed an assortment of testing occurred between September 13, 2022, and January 18, 2023.[12] The conductor was found to be compliant with all test criteria except for one conducted on January 16, 2023, described as "Monitor Compliance for Switch/Derail Flag Test." There were 8 tests on January 18, 2023, including authorized speed, communications, safety critical rules, personal safety, restricted speed, shove moves, handling switches and derails, and train movement.

[8] See again document: NS Email Hire Dates
[9] Document: Conductor Certification
[10] Document: Conductor Training
[11] Document: Conductor Discipline Report
[12] Document: Conductor Efficiency Tests

6.2 Work Schedule

The conductor reported for work at 6:30 pm on the day before the accident, which occurred at 1:08 am on March 7, 2023.[13] He had been on duty for about 6 hours and 38 minutes when the accident occurred. Prior to the start of that shift, he had been off duty for about 86 hours and 54 minutes.

Military	Local Clock Time	Local Date												
		2/22/2023	2/23/2023	2/24/2023	2/25/2023	2/26/2023	2/27/2023	2/28/2023	3/1/2023	3/2/2023	3/3/2023	3/4/2023	3/5/2023	3/6/2023	3/7/2023
0:00	12:00 00 AM	12:50 AM													
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2:00	2:00 00 AM			2:32 AM	2:32 AM				2:32 AM						
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15:00	3:00:00 PM														
16:00	4:00:00 PM														
17:00	5:00:00 PM														
18:00	6:00:00 PM		6:30 PM	6:30 PM				6:30 PM	6:30 PM	6:30 PM				6:30 PM	
19:00	7:00:00 PM														
20:00	8:00:00 PM														
21:00	9:00:00 PM														
22:00	10:00:00 PM														
23:00	11:00:00 PM														
	Time (hh:mm)		8:02	8:02				8:02	8:36	9:06				6:38	
	Time Away (hh:mm)		41:40	15:58				87:58	15:58	15:24				86:54	

Table 2. Conductor Work Schedule Preceding the Accident. Hours worked are generally shown in green/outlined blocks that correspond to the 24 hours of the day (y-axis). The specific shift start and end times are written at the top and bottom of the green/outlined blocks. The estimated accident time (1:08 a.m.) is shown in orange. At the bottom of the table, 'Time' indicates the total shift time, and 'Time Away' indicates the total time between shifts.

[13] Document: Conductor Timesheet

7.0 Stein, LLC Truck Driver

7.1 Work History

The truck driver was hired by Stein, LLC on 1/10/2022.[14] He had a valid commercial driver license (class A).[15] Stein, LLC records show that the truck driver regularly participated in toolbox meetings.[16] The topics of these meetings changed from day to day. The topics for the meetings most recently attended by the truck driver were:

- Utility knife
- Walking in the Slab Yard
- Behaviors
- Equipment Start Up
- Hand Signals
- Cell Phones
- Crush Hazards
- Horseplay
- Experience
- Leaning Objects
- Nip Point
- Stop Signs
- Bed Up Indicators
- Hard Hat

The truck driver was involved in a collision on 1/14/2023, which was described as:[17]

> *"Received a call from [the truck driver] at 1:37am that he clipped a building at C6 (Fresh Air Building). The building has minor damage a chip and a couple scratches. 1891's catwalk was ripped off and the driver side mirror was pushed in and couple scratches on the piece of machinery. The roadway was not salted properly, there is a layer of black ice covering the road not to mention the amount of steam coming off of the building."*

[14] The truck driver indicated this information in his interview, which is in the public docket. It is also in company documents, which are not in the public docket because they contain personal information and are otherwise not pertinent.
[15] The truck driver indicated this information in his interview, which is in the public docket. It is also in company pre employment records, which are not in the public docket because they contain personal information and are otherwise not pertinent.
[16] Document: Truck Driver Tool Box Talks
[17] Document: Truck Driver Prior Incident

7.2 Work Schedule

The truck driver reported for work at 11:00 pm on the day before the accident, which occurred at 1:08 am on March 7, 2023.[18] He had been on duty for about 2 hours and 8 minutes when the accident occurred. Prior to the start of that shift, he had been off duty for about 16 hours. He worked every day for the two weeks prior to the accident. His longest shift was 14 hours and 30 minutes, which started at 7:00 pm on 3/2/2023 and ended at 3/3/2023 at 9:30 am.

Military	Local Clock Time	Local Date													
		2/22/2023	2/23/2023	2/24/2023	2/25/2023	2/26/2023	2/27/2023	2/28/2023	3/1/2023	3/2/2023	3/3/2023	3/4/2023	3/5/2023	3/6/2023	3/7/2023
0:00	12:00 00 AM														
1:00	1:00 00 AM														1 08 AM
2:00	2:00 00 AM														
3:00	3:00 00 AM														
4:00	4:00 00 AM														
5:00	5:00 00 AM														
6:00	6:00 00 AM														
7:00	7:00 00 AM	7 00 AM	7:00 AM	7:00 AM	7:00 AM	7 00 AM	7:30 AM	7:30 AM	7 00 AM	7 00 AM		7 00 AM	7 00 AM	7 00 AM	
8:00	8:00 00 AM														
9:00	9:00 00 AM										9:30 AM				
10:00	10:00 00 AM														
11:00	11:00 00 AM														
12:00	12:00:00 PM														
13:00	1:00:00 PM														
14:00	2:00:00 PM														
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16:00	4:00:00 PM														
17:00	5:00:00 PM														
18:00	6:00:00 PM														
19:00	7:00:00 PM				7:00 PM	7:00 PM				7:00 PM		7:00 PM	7:00 PM		
20:00	8:00:00 PM														
21:00	9:00:00 PM														
22:00	10:00:00 PM	11:00 PM	11:00 PM	11:00 PM			11:00 PM	11 00 PM	11 00 PM		11 00 PM			11:00 PM	
23:00	11:00:00 PM														
	Time (hh:mm)	8:00	8:00	8:00	12:00	12:30	8:30	8:00	8:00	14:30	8:00	12:00	12:00	2:08	
	Time Away (hh:mm)	16:00	16:00	16:00	12:00	12:00	15:30	15:30	16:00	12:00	13:30	12:00	12:00	16:00	

Table 3. Truck Driver Work Schedule Preceding the Accident. Hours worked are generally shown in green/outlined blocks that correspond to the 24 hours of the day (y-axis). The specific shift start and end times are written at the top and bottom of the green/outlined blocks. The estimated accident time (1:08 a.m.) is shown in orange. At the bottom of the table, 'Time' indicates the total shift time, and 'Time Away' indicates the total time between shifts.

[18] Document: Stein Email Truck Driver Timesheet

8.0 Grade Crossing Visibility Observations

8.1 Conservative Truck Position

Investigators went to the scene of the accident and took visibility observations from the cab of the truck to determine the approximate field of view that the driver would have had at the time of the accident.[19] The truck was first placed in a 'conservative' position, with the front bumper parallel to the stop sign.[20] From this location, observers leaned forward in the seat, and looked out the right window to see how far down the railroad tracks was visible. From this 'conservative' position, a driver can see about 115 feet to the right of the crossing (this point is indicated as Cone 3 in the figure below). Note that the 'crossing' was identified as the approximate location that the front right corner of the truck was estimated to first reach the rail.

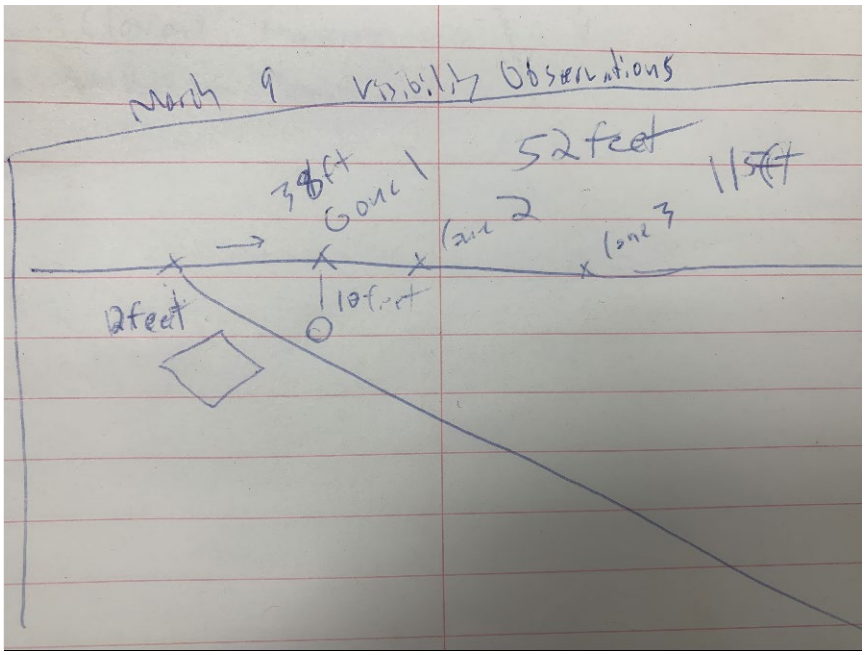

Figure 2. The above figure is a photo of a hand drawn sketch by the system safety group chairman. The rail is depicted by a horizontal line, and the road is depicted by an angled line that intersects it from below. Three cones were placed to indicate measurements from the crossing, as described in this section of the report. The square represents the truck, and the circle represents the stop sign with crossbucks. Note that the figure is not drawn to scale.

[19] Note that visibility observations were not taken from the position of the conductor. The conductor was riding the leading end of the railcar that the truck was on (southeast side of the track), so his field of view was not obstructed by the railcar. No obstructions (e.g., vegetation overgrowth) were observed between the truck and train, and the truck lights were functional.

[20] Note that the 'conservative' position is not where the truck driver stopped on the night of the accident. See the next section (8.2 Estimated Truck Position) for a description of the view from the approximate location where the truck stopped.

Figure 3. This photo shows the 'conservative' truck location behind the stop sign.

Figure 4. In this photo, the cone is 'Cone 3' in the sketch. It shows the view from the right window (note that there are two windows on the right side, this is the larger one toward the front).

8.2 Estimated Truck Position

After reviewing surveillance video provided by Cleveland-Cliffs, the system safety investigative group estimated that the truck driver had pulled the truck up past the stop sign before stopping on the night of the accident. To approximately recreate this position, the truck was pulled up closer to the crossing (the 'estimated' position). From this position, leaning forward in the seat and looking between the truck exhaust and the bed of the truck, a driver can see about 52 feet to the right of the crossing (see 'Cone 2' in Figure 2).

Figure 5. These photos show the 'estimated' truck position.

Figure 6. This photo shows 'Cone 2' from Figure 2. The cone can be seen between the bed of the truck and the exhaust from the right window (note that there are two windows on the right side, this is the larger one toward the front).

An additional observation was taken from the 'estimated' truck position. For this measurement, the observer did not lean forward, nor look between the exhaust and the bed of the truck. This observed distance from the crossing was noted as about 38-feet (indicated by 'Cone 1' in the Figure 2). The investigative group determined that of the three observations, this field of view best approximated that of the truck driver on the night of the accident.

Figure 7. This photo shows the general view of the track from the right window (note that there are two windows on the right side, this is the larger one toward the front) with the truck located in the 'estimated' position. The cone with the green marking is 'Cone 1' in the Figure 2. The cone is placed to the left of the truck exhaust.

9.0 Interviews

The system safety group conducted four interviews. The interviewees were the Stein, LLC truck driver[21] and operations supervisor,[22] the NS engineer,[23] and the Cleveland-Cliffs division manager.[24] A transcript of each of these interviews is available in the docket.

9.1 Truck Driver

The truck driver provided the following description of the accident sequence:

> *"It was just the stop sign. I came up to it, I stopped, I looked, my vision was impaired on the right of the truck, and then so I stopped, I looked, I did not see a train, so I let off the brake, I proceeded and then, when I saw the train, I hit the brake again, but it didn't do anything. Not that the brake didn't do anything, I just -- I was too far forward."*

He added that, "*The way you pull up to the tracks is at an angle*."

NTSB asked the truck driver if he had experienced fatigue on the job. He said: "*In the past… I had to drink energy drinks to stay awake."* However, on the night of the accident he indicated that he was not fatigued, but rather he "*felt fine."*

[21] Document: Interview Truck Driver
[22] Document: Interview Operations Supervisor
[23] Document: Interview Engineer
[24] Document: Interview Division Manager

9.2 Engineer

The train engineer provided the following description of the accident sequence:

> *"[The conductor] started shoving back and he gave me car counts, he usually gives me -- it depends because there's some curves there so he might give me five or ten cars and, you know, until we can see more because it curves a lot coming down there until it straightens out a bit. So we were going back, he straightened -- he's obviously on the end of the movement. He told me then 20 when he could see more when it's straighter, cleared 20, we come up the first crossing, he always says crossing protected, no traffic. I repeat it to him. Keep shoving back. Then the next crossing he says 20, clear 20 and crossing protected, no traffic and then it wasn't much longer after that, that he just yelled stop, you know, he just yelled stop, so I -- I just put full service and the independent on and we stopped pretty quickly.*[25]
>
> *And then I didn't think, I wasn't -- and then he -- his voice wasn't panicky at all, he just seemed more mad than anything by saying stop, so I didn't really freak out at all, I just asked hey, [conductor] and I didn't hear nothing and I said it again, I didn't hear nothing. So then I immediately got down and started running towards the end, which is only a few, 11 cars, and I see a truck, a very large truck that run through there, I don't know if you've ever noticed, know what they are, but they're huge trucks, their wheels are like 6 feet tall.*
>
> *And I could see it cornered into the last car, so I knew that something happened. So I was running and I assumed that the driver of the truck was running towards me and yelling call an ambulance, call an ambulance, and I said -- I said did you call, did you call an ambulance and he -- I think he said he didn't have a phone and I yelled at him and I was mad because now I got to run back when all I want to do is go to the end of the train -- and I ran back on the engine and called my yardmaster and told him we need an ambulance out here right away and he answered immediately and said he would do that and then I immediately grabbed the first -- all the stuff out of the first-aid kit and ran to the end of the train."*

[25] Note that the engineer's description of this communication sequence is generally consistent with the recorded radio communications. Although the audio is difficult to transcribe precisely, in the seconds before the collision, the conductor instructed the engineer to continue the movement ("*keep it coming*") in a calm voice, but then suddenly yelled something over the radio - possibly "*that will do,*" a common conductor phrase used to direct the engineer to stop the train.

The engineer said that his supervisor was the yardmaster in Rockport. After the accident, he called the yardmaster, who then called 911. He said that a trainmaster arrived on scene after the accident and took "*control of the situation*."

9.3 Division Manager

Investigators spoke with the division manager of the railroad operations at Cleveland-Cliffs, a position he had held for about 4 months at the time of the interview. He said that they operate the railway inside the plant, known as the Cleveland Works Rail Operation (CWRO). He said that he had "very little" railroad training. Previously, he had worked in steel producing operations, and had been with the company for about 25 years.

The division manager said that they have two groups within the CWRO, transportation and maintenance. Transportation employees operate the locomotives, moving iron from the blast furnaces to the steel plant shops. They also transport outbound material in the form of coil and slabs. They have train masters, yard masters, and assistant yard masters. He said that they follow operating rules that are based on the code of federal regulations. The maintenance group maintains the trains and the track owned by Cleveland-Cliffs.

Regarding the crossing where the accident occurred, the division manager said that there was a stop sign at the crossing that his group had installed, but they do not maintain that section of track because it is owned by NS. He said that during his time in his current position, he had not coordinated with NS on grade crossing safety, or safety in general. He said that he was not aware of any complaints about the safety of the crossing.

The division manager was aware of a prior crossing accident on CWRO tracks that involved a semitruck (in a different area of the plant). He indicated that crossing gates were installed at the crossing afterwards.

The division manager indicated that on Cleveland-Cliffs property, there is both CWRO track and NS track. He indicated that generally NS only operates on NS track, but there is an interchange at the NS Campbell Road Yard. NS brings in raw materials, and ships out finished goods from Cleveland-Cliffs. He described it as follows:

> *"So we order raw materials for steelmaking process. Particularly scrap, coke, and NS brings that down to our property and then we ship out finished goods in the form of slabs and coils and the NS takes that from our property. And that generally takes place at the Campbell Road yard."*

He said that there are two yardmasters, one from each company (Cleveland-Cliffs and NS), who communicate and coordinate regarding the interchange.

Regarding contractor safety, the division manager said:

> *"Stein is responsible for their own safety. We do provide guidelines for contractors that we expect our contractors to adhere to."*

He added that:

> *"We will perform audits. You know, if I observe a Stein employee doing something that I feel is unsafe, we will stop that behavior."*

And:

> *"So we have the yearly meeting with contractors that do work in our plant. And tell them what our guidelines are and what our expectations are. And that's how that's handled with contractors. But NS isn't -- they're not a contractor for Cleveland-Cliffs."*

He described the relationship between NS and Cleveland-Cliffs as follows:

> *"I think the relationship is -- it's a business relationship. We buy raw materials and they bring them to us. We ship out finished goods and they take them from us. They provide transportation for our goods whether it be in the form of raw material or finished goods."*

The division manager said that Cleveland-Cliffs has a system to track safety issues that result in a near miss, or equipment damage. However, he indicated that other safety concerns might not be logged.

10.0 Crossing Ownership

NTSB contacted Cleveland-Cliffs and NS regarding the ownership of the crossing where the accident occurred. Cleveland-Cliffs provided the following response:[26]

> *"Cleveland-Cliffs Cleveland Works LLC ("Cliffs") submits this statement as an update on its efforts to identify ownership of the crossing in question.*
>
> *In December 2020, Cleveland-Cliffs Inc. ("Cliffs Inc.") acquired ArcelorMittal Cleveland LLC, which was the owner of the facility where the accident in question occurred. The name of the Cleveland facility was changed to Cliffs. Prior to the acquisition by Cliffs Inc., over a period of decades, the facility was owned by various other companies and had been bought and sold a number of times through bankruptcy proceedings, asset purchase agreements and stock purchase agreements. Cliffs has been searching historical transactional records from the prior owners in an attempt to identify documents which would specifically address the ownership of the crossing. However, many of the records obtained from prior owners are in disarray, and may not be complete or current, as a result of bankruptcy proceedings and the passage of time. Accordingly, Cliffs still has not been able to determine the question of ownership of the crossing."*

NS provided the following response:[27]

> *"The subject crossing is a private grade crossing on property owned by Cleveland-Cliffs. Cleveland-Cliffs also installed and maintains the warning devices at the grade crossing. As such, Cleveland-Cliffs owns the subject grade crossing, and because it installed and maintains the warning devices, it is responsible for the crossing protection at the grade crossing."*

[26] Document: Cleveland Cliffs Email Ownership
[27] Document: NS Email Hire Dates

11.0 NS Grade Crossing Safety

NTSB asked NS to describe how they manage, maintain, and upgrade grade crossings on Cleveland-Cliffs property, as well as other properties. NS provided the following response:[28]

> *"Norfolk Southern Corporate Policy 400 is Norfolk Southern's crossing policy. It is implemented by Corporate Procedures 400.1, 400.2, and 400.3. At the Cleveland-Cliffs crossing where this incident occurred, Norfolk Southern maintains the track through the crossing and the surface of the crossing between the rails and for a short distance outside the rails. Cleveland-Cliffs installed and maintains the traffic control devices at the crossing and is responsible for any changes in the traffic control devices. If Cleveland-Cliffs decided to install active traffic control devices at the crossing, Cleveland-Cliffs would be responsible to pay for the design, installation, and maintenance of the devices, though the design, installation, and maintenance of active traffic control devices would be done by Norfolk Southern employees or contractors with reimbursement from Cleveland-Cliffs. Norfolk Southern would cooperate with Cleveland-Cliffs should it decide to install active traffic control devices at the crossing."*

NS Corporate Policy 400 reads in part:[29]

> *"Although state governments have the primary responsibility for highway railroad crossing safety, including the location or closure of crossings and the design and installation of crossing warning systems, Norfolk Southern Corporation ("Corporation") believes that it is in the public interest and the Corporation's to actively participate with the appropriate governmental agencies in improving grade crossing safety.*
>
> *The Corporation will develop and pursue with the states a comprehensive agenda of grade crossing closure and improvement. The Corporation enthusiastically supports the programs of Operation Lifesaver, Inc., and its affiliates and works with law enforcement officials to improve public awareness of grade crossing safety and trespasser abatement.*

[28] Document: NS Email Grade Cross Policy
[29] Document: NS Corporate Policy 400

It is the goal of the Corporation to achieve maximum public funding of improvements at crossings on the systems of the Corporation's operating subsidiaries by actively encouraging federal, state and local participation in crossing improvement projects. In appropriate situations, Corporate funds will be expended in order to facilitate crossing closure or completion of a project which would otherwise fail to be implemented for insufficient funds."

NS Corporate Procedure 400.1 reads in part:[30]

"This Procedure implements Corporate Policy 400, Highway/Railway Crossing Safety and Trespasser Abatement, and provides guidelines for division grade crossing safety and trespasser abatement efforts.

A Division Grade Crossing Safety/Trespasser Abatement Committee shall be established on each Operating Division.

Membership should consist of the Division Superintendent, Assistant Division Superintendent, Division Engineer, General Supervisor-C&S, Division Manager Mechanical Operations, Police Special Agent-In-Charge, Grade Crossing Safety Group, Public Improvements Group, and Casualty Claims. The Division Superintendent may designate additional members as necessary.

Each meeting shall include formal discussion and a hi-rail inspection of a portion of the division's territory. State Department of Transportation ("DOT") officials should be invited to all hi-rail inspections. Grade Crossing and Trespasser Safety issues are also discussed at monthly Division Safety Planning Committee meetings."

NS Corporate Procedure 400.2 reads in part:[31]

"This Procedure implements Corporate Policy 400, Highway/Railway Crossing Safety and Trespasser Abatement, and provides guidelines for the identification of opportunities for grade crossing improvements.

The determination of need and selection of devices at a highway/railway grade crossing is made by the public agency with jurisdictional authority who will identify and arrange for installation of appropriate traffic control devices. Public crossing eliminations require governmental involvement and cooperation.

Corporate funds are available for projects to facilitate elimination of grade crossings, improvements to crossings and trespass abatement projects."

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[30] Document: NS Corporate Procedure 400.1
[31] Document: NS Corporate Procedure 400.2

NS Corporate Procedure 400.3 reads in part:[32]

> *"This Procedure implements Corporate Policy 400, Highway/Railway Crossing Safety and Trespasser Abatement, and provides guidelines for Operation Lifesaver (OL) activities.*
>
> *Operation Lifesaver requires consistent central direction, clear objectives and adequate funding. Supervisory support from all levels is absolutely necessary to ensure system-wide commitment to the program.*
>
> *Each division will assign an employee to serve as Division OL Coordinator. The Division OL Coordinator administers the division Operation Lifesaver effort with the assistance of the Grade Crossing Safety Group.*
>
> *All Corporation OL presenters are volunteers; however, under conditions specified by individual departments, employees may be reimbursed for expenses and earnings lost while involved in approved OL activities.*
>
> *Operation Lifesaver and its logos and materials are the property of Operation Lifesaver, Inc. (OL, Inc.). All activities referring to Operation Lifesaver must comply with the policies and procedures of Operation Lifesaver, Inc."*

12.0 Toxicology

Please refer to the NTSB Medical Factual report in the docket for toxicological information.

[32] Document: NS Corporate Procedure 400.3

13.0 Federal Railroad Administration Field Inspections

NTSB did not launch a track or mechanical specialist to this investigation. The following information and analysis were provided to NTSB by subject matter experts from the Federal Railroad Administration (FRA) after their field inspections.

13.1 Track

While on-scene (March 9, 2023) an FRA Track Safety Inspector conducted an inspection of the track structure leading to the accident crossing and took no exception as per 49 CFR Part 213 TSS. It was determined that the track did not contribute the cause or severity of the accident.

13.2 Motive Power & Equipment

An FRA motive power, & equipment inspector inspected UTLX 125108 on March 7, 2023, at Cleveland-Cliffs facility where the accident occurred, located in Cleveland, Ohio. UTLX 125108 is a tank freight car with an outside length of 42 feet 0 inches with outside extreme height of 14 feet 4 inch and extreme width of 10 feet 8 inches, load limit of 205,200lbs and gross rail load weight of 263,000lbs. UTLX 125108 was line #13 in NS Train consist C75-07 and is the subject railcar the conductor was mounted. No mechanical defects were observed. UTLX 125108 was found to be compliant within all Railroad Safety Appliance Standards (§231), Railroad Freight Car Safety Standards (§215) and Reflectorization of Rail Freight Rolling Stock Freight (§224).

14.0 Post Accident Actions

Stein, LLC sent an email to NTSB summarizing their post-accident actions, the body of which reads:[33]

> *"After the accident, Stein asked Cliffs to remove a concrete structure that prevented us from crossing the NS rail crossing at a 90 degree angle. It was about 15'x10'x5' and looked like it was a foundation of an old building that is no longer there. The attached picture is a Google Maps screenshot from before the structure was removed. I circled the structure in red that was removed and the blue roadway shows the new crossing angle for the track if traveling from east to west. Since Cliffs made this change and added additional lighting, our equipment operators' line of sight in the area of the NS track has improved. Prior to operations starting back up, Stein site management met with Stein employees who worked in this area and reiterated the company's rail safety practices and procedures and commitment to safety. Stein also audited and surveyed all of the rail crossings within the Cleveland plant post-accident and shared its findings with Cliffs."*

Figure 8. The above image was provided by Stein, LLC. It shows the crossing where the accident occurred from a top-down view. A red circle surrounds a square structure to the east of the railroad track. A road is drawn in blue showing the general location of the new road.

[33] Document: Stein Email Post-Accident Safety

Cleveland-Cliffs provided an update on their post-accident safety enhancements.[34] Interim measures include removal of foundation, installation of jersey barriers, an additional stop sign and crossbuck sign, and portable light towers. Additionally, the company is exploring more robust enhancements to the crossing and have brought in an engineering firm to provide help. In general, they want to be able to straighten the haul road to better ensure a 90° alignment with the tracks but there are numerous challenges including the need to remove or reposition existing power lines and associated guide wires. They also believe they would need to modify the existing tracks and switches and are considering other improvements including the removal of redundant tracks, improved permanent lighting, and an active railroad crossing that would control vehicular traffic for both the NS crossing and their internal railroad tracks associated with the mid dock area. These enhancements will require coordination with First Energy as well as Norfolk Southern.

[34] Document: Cleveland Cliffs Ownership Email

E. CHIEF REVIEW

Submitted by:

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/s/ August 24, 2023

Approved by:

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/s/ August 24, 2023