Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch

Accident Investigation Report
HQ-2018-1306

Wheeling & Lake Erie Railway Company (WE)
Head-On Collision
Akron, Ohio
November 19, 2018

SYNOPSIS

On November 19, 2018 at approximately 3:05 p.m., EST, Wheeling & Lake Erie Railway Company (WE) remote control yard train 561 (Train 1) collided head-on with Akron Barberton Cluster Railway Company (ABC) freight train Z641 (Train 2). Train 1 was being operated by remote control and experienced a separation between the locomotives, and the first car with the locomotives out of sight of the Engineer controlling the movement. After the separation, the locomotives overran the Remote Control Zone (RCZ), reaching a speed of 47 mph before striking Train 2 while it was stopped on the main line waiting to enter the yard.

The leading locomotives of Train 1 (WE 304) and the leading locomotive of Train 2 (WE 106) were lifted off their trucks, and WE 106 was derailed. Additionally, the fuel tanks of both locomotives were damaged and leaked an undetermined quantity of diesel fuel.

At the time of the accident, it was daylight, raining and the temperature was approximately 37 °F.

The Federal Railroad Administration (FRA) determined the probable cause of the accident was E39C – Other coupler and draft system defects (CAR).

Additionally, FRA determined a contributing cause of the accident was H399 – Other general switching rules.

U.S. Department of Transportation
Federal Railroad Administration

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HQ-2018-1306

TRAIN SUMMARY

1. Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Wheeling & Lake Erie Railway Company	WE	HQ-2018-1306
2. Name of Railroad Operating Train #2	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
Akron Barberton Cluster Railway Company	AB	HQ 2018-1306

GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Wheeling & Lake Erie Railway Company	WE	180117
2. U.S. DOT Grade Crossing Identification Number	3. Date of Accident/Incident	4. Time of Accident/Incident
	11/19/2018	3:05 PM

5. Type of Accident/Incident
Head On Collision

6. Cars Carrying HAZMAT	7. HAZMAT Cars Damaged/Derailed	8. Cars Releasing HAZMAT	9. People Evacuated	10. Subdivision
1	0	0	0	WHEELING & LAKE ERIE RAI

11. Nearest City/Town	12. Milepost *(to nearest tenth)*	13. State Abbr.	14. County
Akron	A167	OH	SUMMIT

15. Temperature (F)	16. Visibility	17. Weather	18. Type of Track
37 ˚F	Day	Rain	Main

19. Track Name/Number	20. FRA Track Class	21. Annual Track Density *(gross tons in millions)*	22. Time Table Direction
Main	Freight Trains-10, Passenger Trains-15	2.86	East

23. PTC Preventable	24. Primary Cause Code	25. Contributing Cause Code(s)
No	[E39C] Other coupler and draft system	H399

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FRA FACTUAL RAILROAD ACCIDENT REPORT

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OPERATING TRAIN #1

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Freight Train	No	WE 561

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	5. Trailing Tons (gross excluding power units)	6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter	Code
47.0 MPH	R	0		1

6. Type of Territory

Signalization:
Not Signaled

Method of Operation/Authority for Movement:
Yard/Restricted Limits

Supplemental/Adjunct Codes:
R

7. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	8. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box	Alcohol	Drugs
(1) First Involved *(derailed, struck, etc.)*	WE 304	1	no		0	0
(2) Causing *(if mechanical, cause reported)*	RGRX 1896	3	yes	9. Was this consist transporting passengers?		No

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	2	0	0	0	0	(1) Total in Equipment Consist	19	0	1	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
682500	10376

Number of Crew Members				Length of Time on Duty	
14. Engineers/Operators	15. Firemen	16. Conductors	17. Brakemen	18. Engineer/Operator	19. Conductor
1	0	1	0	Hrs: 8 Mins: 5	Hrs: 8 Mins: 5

Casualties to:	20. Railroad Employees	21. Train Passengers	22. Others	23. EOT Device?	24. Was EOT Device Properly Armed?
				N/A	N/A
Fatal	0	0	0	25. Caboose Occupied by Crew?	N/A
Nonfatal	0	0	0		

26. Latitude	27. Longitude
41.063376000	-81.433501000

U.S. Department of Transportation
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FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HQ-2018-1306

OPERATING TRAIN #2

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Freight Train	Yes	Z641

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	5. Trailing Tons (gross excluding power units)	6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter	Code
0.0 MPH	R	250		0

6. Type of Territory

Signalization:
Not Signaled

Method of Operation/Authority for Movement:
Signal Indication

Supplemental/Adjunct Codes:
R

7. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	8. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box	Alcohol	Drugs
(1) First Involved *(derailed, struck, etc.)*	WE 106	1	no		0	0
(2) Causing *(if mechanical, cause reported)*	N/A	0	no	9. Was this consist transporting passengers?		No

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	2	0	0	0	0	(1) Total in Equipment Consist	1	0	4	0	0
(2) Total Derailed	1	0	0	0	0	(2) Total Derailed	0	0	0	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
290000	0

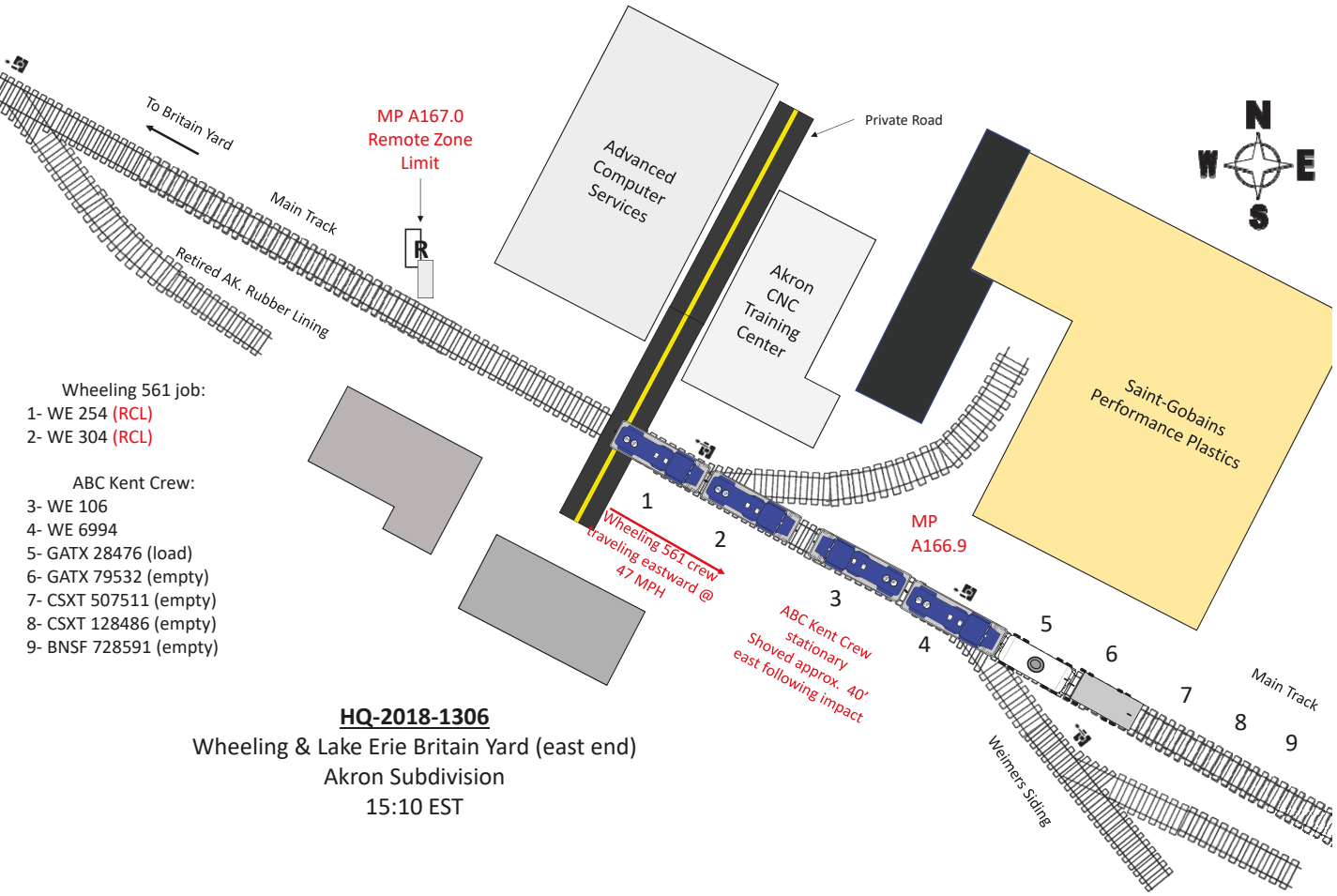
Number of Crew Members				Length of Time on Duty	
14. Engineers/Operators	15. Firemen	16. Conductors	17. Brakemen	18. Engineer/Operator	19. Conductor
1	0	1	0	Hrs: 9 Mins: 5	Hrs: 9 Mins: 5

Casualties to:	20. Railroad Employees	21. Train Passengers	22. Others	23. EOT Device?	24. Was EOT Device Properly Armed?
				Yes	Yes
Fatal	0	0	0	25. Caboose Occupied by Crew?	N/A
Nonfatal	0	0	0		

26. Latitude	27. Longitude
41.063376000	-81.433501000

SKETCHES

Sketch - Accident Sketch



HQ-2018-1306
Wheeling & Lake Erie Britain Yard (east end)
Akron Subdivision
15:10 EST

NARRATIVE

Circumstances Prior to the Accident

Train 1 – WE 561

Wheeling & Lake Erie Railway Company (WE) yard job WE 561 (Train 1) consisted of two remote control locomotives (RCL), WE 304 and WE 254, and was scheduled to perform switching operations in Brittain Yard in Akron, Ohio. The locomotives of Train 1 received all required tests and inspections from their operating crew at the beginning of their shift. Train 1 was a yard switch train, and was not scheduled to leave Brittain Yard.

The regular crew of Train 1 included a locomotive engineer and a conductor, who reported for duty at 7 a.m., EST, on November 19, 2018. Both employees had received more than the statutory off-duty period prior to reporting for duty. The Engineer was operating the locomotives remotely, so no crewmembers were on the locomotives while switching.

Train 2 – AB Z641

Akron Barberton Cluster Railway Company (ABC) local train Z641 (Train 2) consisted of 2 locomotives (WE 106 and WE 6994) and 5 cars (1 load, 4 empties), was approximately 400 feet in length, and had 250 trailing tons. Train 2 was scheduled to transfer cars to Brittain Yard, and had received all required tests and inspections prior to departing Kent, Ohio.

The crew of Train 2 included a locomotive engineer and a conductor, who reported for duty at 6 a.m., EST, on November 19, 2018 in Kent. Both employees had received more than the statutory off-duty period prior to reporting for duty.

The accident occurred on the WE Akron Subdivision, on the east end of Brittain Yard. The method of operation on the Akron Subdivision is Track Warrant Control (TWC). Brittain Yard begins at Milepost (MP) A167, and train movement is governed by the ACY Yardmaster through the yard, with a maximum authorized speed of 10 mph. The Akron Remote Control Zone also begins at MP A167, and extends 3,092 feet including both the north and south lead at the east of Brittain Yard. Timetable direction on the Akron Subdivision is east, and cardinal direction is southeast. Timetable direction will be used throughout the report.

Train 1, operating in an active RCO Zone, was performing switching operations at Brittain Yard as Train 2 approached. Train 2 contacted the Yardmaster to get permission to enter the yard, and was advised to speak to the crew of Train 1. The crew of Train 1 instructed Train 2 to stop at the remote boards, MP A167, and wait for further instruction.

The Accident

As Train 2 waited east of the established remote zone limits, the crew of Train 1 continued to perform their assigned switching activities on track 6 in the WE Brittain Yard. With the Engineer of Train 1 operating the remote control while standing near the track 4 switch, and the Conductor standing at the track 6 switch, Train 1 began pulling 20 freight cars out of track 6 in an eastward direction using the zone for head-end protection. As Train 1 continued east, with the locomotives out of view of the operating crew, the locomotives became separated from the cut of cars. The crew of Train 1 observed the cars slowing, so the Engineer applied additional tractive effort. As the free-rolling cars continued to slow, the locomotives accelerated as they traveled east towards Train 2. The crew of Train 2 observed the locomotives from Train 1 approaching them at an abnormally high speed, and they exited the rear of the lead locomotive (WE 106) and jumped clear of the train. Train 1 traveled 2,500 feet, accelerating to 47 mph, before it struck Train 2 at 3:05 p.m., EST, 100 feet east of MP A167.0.

The crew of Train 1 was unaware of the collision and began walking towards the head end of their train to determine why the cars had stopped. While walking, they reported hearing the crew of Train 2 telling the Yardmaster that their train had been struck and to send assistance. Approaching the head end, the crew of Train 1 observed that their locomotives had uncoupled from the east end of head car RGRX 1896.

The leading locomotives of Train 1 (WE 304) and leading locomotives of Train 2 (WE 106) were lifted off their trucks, and WE 106 was derailed. Additionally, the fuel tanks of both locomotives were damaged and leaked an undetermined quantity of diesel fuel.

At the time of the accident, it was daylight, raining and the temperature was approximately 37 °F.

Post-accident/Incident Investigation

On November 20, 2018, the Federal Railroad Administration (FRA) began an investigation of this accident/incident. After an on-site investigation, FRA investigators requested and received all pertinent records, forms, and other documentation necessary to conduct their final analysis and draw conclusions concerning the pertinent facts of the accident/incident. The following analysis and conclusions, as well as any possible contributing factors and the probable cause in this report, represent the findings of FRA's investigation.

Analysis and Conclusions:

Analysis - Toxicology Testing: The accident met the requirements of Title 49 Code of Federal Regulations (CFR) Part 219, Subpart C. Both crew members of Train 1 were tested, and all test results were negative for drugs and alcohol.

Conclusion: FRA determined drugs and alcohol use did not contribute to the cause or severity of the accident.

Analysis - Fatigue: FRA uses an overall effectiveness rate of 72 or less for 80 percent or more of the time as the baseline for fatigue analysis. This is the level at which the risk of a human factors-related accident is calculated to be equal to chance. Below this baseline, fatigue was not considered as probable for an employee. Software sleep settings vary according to information obtained from each employee. If an employee does not provide sleep information, FRA uses the default software settings.

FRA obtained fatigue-related information, including work history, for all train operating employees involved in this accident. Based on the Fatigue Audit Inter Dyne (FAID) analysis, fatigue was not probable for any of the crew members involved in the accident.

Conclusion: FRA determined fatigue did not contribute to the cause or severity of this accident.

Analysis – Train Operating Performance: The locomotives were equipped with a speed indicator and event recorder as required by Federal regulations. The relevant event recorder data was downloaded by WE Road Foreman of Engines and analyzed by FRA. The initial movement of Train 1 began at about 3:03 p.m., EST, in track 6. The Engineer, using the remote control, placed the locomotive in throttle position 4 briefly before increasing to throttle position 5. The Engineer then modulated the throttle between position 4 and idle to maintain a speed of about 10 mph. At about 3:04:39 p.m., EST, the locomotive began to rapidly increase speed with a simultaneous decrease in tractive effort, indicating this was the time the locomotives became uncoupled from the rest of the cars. The Engineer continues to increase the throttle from idle to position 5 as the locomotives gain speed until the collision at 5:05:38 p.m., EST. The actions taken by the Engineer during the eastward movement indicate he was unaware the locomotives had come detached from the cars.

In a post-accident interview, the Engineer indicated he had experienced instances in the past where his train had lost communication in this area and his movement was stopped. The Engineer stated he thought he had applied the brakes, moved the selector to neutral, and attempted to reset the box, however, none of these actions are recorded on the download. Beginning at about 3:03 p.m., EST, the brakes were fully released, and the direction call remained in the forward position. No action was recorded on the event recorder that suggests the Engineer was attempting to reestablish communication to the locomotive.

WE Timetable No. 11, effective April 16, 2018, requires crews to use four cars of air while switching to aid in braking. The crew of Train 1 failed to comply with this rule and was not using any air while switching, relying only on the brakes of the locomotive. Thus, when the locomotives of Train 1 became separated from the 20 cars, there was no separation of the airline resulting in an emergency brake application. Had the crew been following this requirement, the emergency brake application initiated by the airline separation would have stopped the locomotives of Train 1 immediately. The crew of Train 1 indicated it was a normal occurrence for switching to be performed without using the required air brakes.

Train 2 was stopped at the time of the accident. All records reviewed indicate the crew of Train 2 was following all operating rules.

Conclusion: FRA determined failure to use at least 4 cars of air contribute to the cause and severity of the accident. (Cause code H399)

Analysis – Track Structure: FRA performed a post-accident inspection of the track, and reviewed all inspection records provided by WE. Despite several non-compliant conditions being identified by FRA, all inspections were being performed at the required frequency for the classification of track, and no condition was identified that could have contributed to the accident.

Conclusion: FRA determined the track did not contribute to the cause or severity of the accident.

Analysis – Mechanical (Locomotives): Train 1 consisted of two head-end remote control locomotives, WE 304 (lead-RCL) and WE 254 (trail). FRA conducted a complete field inspection of the WE 254 only. The WE 304 was unsafe to board due to impact damage. The Event Recorder download was reviewed and indicated that the crew of Train 1 performed all necessary testing of the RCL equipment prior to use as required by FRA regulations. No exceptions were taken during the field inspection of the locomotives, to the extent possible.

WE 254 and WE 304 were not equipped with a safety overlay that would prevent Train 1 from operating past the established remote control zone (RCZ), or limit the speed of Train 1. Therefore, Train 1 overran the RCZ and struck Train 2 at 47 mph. While the lack of such optional safety overlays did not cause the accident, they would have prevented the accident from occurring.
Train 2 consisted of two head-end locomotives, WE 106 (lead) and WE 6994 (trail). FRA conducted a complete field inspection of the WE 6994 only. The WE 106 was unsafe to board due to impact damage. No exceptions were taken during the field inspection of the locomotives to the extent possible.

Conclusion: FRA determined the mechanical condition of the locomotives did not contribute to the cause or severity of the accident.

Analysis – Mechanical (Cars): Due to the unintentional uncoupling, freight car RGRX 1896 became the subject car in the investigation.
Prior to arriving at WE Brittain Yard, car RGRX 1896 would have been required to receive a Class I air brake test and a pre-departure mechanical inspection and at WE Brewster Yard. FRA regulations do not require retention of Class I brake test information once the train reaches its destination, and do not require a record pre-departure of mechanical inspections. No pre-accident inspection information was available for freight car RGRX 1896. However, the railroad indicated there were no reports of defective conditions to the car.

Due to the unintended separation of RGRX 1896 and WE 254, the mechanical condition of their couplers and related mechanisms became the focus of the investigation.

An inspection was first performed on the rear of locomotive WE 254 for indication of damage or malfunctioning components that could lead to an unintentional uncoupling. No exceptions were noted.

An inspection was then performed to the B-end (the end of the car that experienced the uncoupling) of car RGRX 1896. It was noted that the uncoupling lever was significantly damaged. The damage was consistent with a coupler/drawbar by-pass event.

While performing this inspection, a WE car inspector indicated that the coupler knuckle on RGRX 1896 had been found in the "uncoupled or open" position immediately after the incident occurred. The crew of Train 1 later confirmed this in their individual interviews.

The WE has numerous video cameras located throughout Brittain Yard. The footage from these cameras was reviewed and a video of the unintentional uncoupling was found showing the moment freight car RGRX 1869 and locomotive WE 254 separated along the East End Switching Lead in a left-hand, 3-degree, 23-minute curve.

WE railroad officials also provided additional evidence of damage consistent with a coupler/drawbar by-pass event to freight car TBOX 671249 on the end, which was previously coupled to the damaged end of the freight car RGRX 1869. TBOX 671249 was shopped at WE Brewster Yard due to an unrelated mechanical issue when the damage was discovered. WE railroad personnel indicated that freight car RGRX 1869 had been coupled to freight car TBOX 671249 at the Norfolk Southern (NS) Moorman Yard in Bellevue, Ohio, as part of a consist assembled to interchange with the WE at Brewster Yard.

A reenactment of the likely "by-pass event" of these two cars was conducted by the WE railroad mechanical forces at the WE Brewster car repair shop. The results of the reenactment strongly indicated these two cars did, in fact, experience a coupler/drawbar by-pass event as was evidenced by the damage, paint transfer, and matching deformations.

The available information and documentation reviewed as part of the investigation indicates that the damage to freight car RGRX 1869 likely occurred at the NS Moorman Yard in Bellevue, prior to interchange with the WE. However, the WE accepted and inspected the car upon arrival to the WE Brewster Yard without identifying the defective condition prior to the accident.

Conclusion: FRA determined the damaged cut lever to freight car RGRX 1869 was the probable cause of the accident. (Cause code E39C)

Overall Conclusions:

The FRA investigation found no signal or track conditions that contributed to the cause of the accident.

The damaged cut lever on RGRX 1869 caused the separation of the locomotives of Train 1 from the rest

of the train. The crew of Train 1 was not using air brakes on the head four cars as required by WE Timetable No. 11, therefore an emergency brake application was not initiated by the separation. WE did not have any system in place in the RCZ to prevent the remote locomotives from leaving the active RCZ and entering the main line.

Probable Cause:

FRA determined the probable cause of the accident was E39C – Other coupler and draft system defects (CAR).

Additionally, FRA determined a contributing cause of the accident was H399 – Other general switching rules.