



***Federal Railroad Administration
Office of Railroad Safety***

***Accident Investigation Report
HQ-2022-1521***

***CSX Transportation (CSX) Collision
Spencer, MA
February 20, 2022***

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report, including this one, made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

FEDERAL RAILROAD ADMINISTRATION
BASIC ACCIDENT INVESTIGATION

1. Primary Railroad CSX Transportation			1a. Alphabetic Code CSX	1b. Class Class I		1c. Railroad Accident Number 000203198	
2. Other Railroad/Entity Involved			2a. Alphabetic Code	2b. Class Select:		2c. Railroad Accident Number	
3. Railroad/Entity Responsible for Track Maintenance CSX Transportation			3a. Alphabetic Code CSX	3b. Class Class I		3c. Railroad Accident Number 000203198	
4. Date and Time of Accident (local) 2/20/2022 00:18		6. Division/Operating Unit Northeastern Division			6a. Subdivision Boston		
7. State (Abbr.) MA	8. County Worcester		9. City/Town (closest) Spencer		10. Latitude/Longitude 42.200337, -71.994189		
11. Milepost QB 59.9	12. Track Name/Number Single Main Track		13. Track Type Main	14. FRA Track Class 3		15. Timetable Direction East	
16. Signalization Signaled		16a. Method of Operation Direct Train Control		16b. Supplemental Codes (Select up to 5) P	Select:	Select:	Select:
17. Accident Type Read-End Collision		18. Equipment Damage \$1,008,649.00		19. Track/Signal/Structure Damage \$80.00		20. Total Damage \$1,008,729.00	
21. Temperature (degrees Fahrenheit) 25		22. Visibility Dark		23. Weather Clear		23a. Warnings/Advisories None	
23b. Weather Related Conditions None		24. Type of Equipment MoW Equipment			25. Train Symbol		
26. Trailing Tons	27. Train Length	28. Empty	29. Attended Yes	30. Remote No	31. Speed (mph) 21	31a. Estimated/Recorded Recorded Speed	
32. Total Locomotives in Accident 0	32a. Head-end Locomotives	32b. Mid-Train Locomotives 0	32c. Mid-Train Locomotive Position 0			32d. Rear-end Locomotives 0	
32e. Total Locomotives Derailed 0	32f. Head-end Derailed 0	32g. Mid-Train Derailed 0	32h. Mid-Train Derailment Position 0			32i. Rear-end Derailed 0	
33. Configuration Select:							
33a. Locomotive Control Select:							
33b. PTC Information Select:							
34. Total Cars in Accident 0	34a. Loaded Freight	34b. Loaded Passenger 0	34c. Empty Freight	34d. Empty Passenger 0	34e. Unoccupied Caboose/Shoving Platform 0	34f. Occupied Caboose/Shoving Platform 0	
35. Total Cars Derailed 0	35a. Loaded Freight 0	35b. Loaded Passenger 0	35c. Empty Freight 0	35d. Empty Passenger 0	35e. Unoccupied Caboose/Shoving Platform 0	35f. Occupied Caboose/Shoving Platform 0	
36a. HAZMAT in Train	36b. HAZMAT Derailed 0	36c. HAZMAT Releasing 0	36d. Evacuation Select:	36e. People 0	37. Point of Derailment	38. Mechanism of Derailment Select:	
39. First Equipment Derailed	39a. Load/Empty Select:	40. Position	41. Weight (tons)	42. AAR Car Type	43. Leading End Select:	44. First Wheel Derailed Select:	
45a. Employee 1 Craft 310	45b. Injured Injured - Severe	45c. Time on Duty 2/19/2022 20:00	45d. Regular Assignment Yes	45e. Drug & Alcohol Tested Yes	45f. In cab @ time of Accident Yes		
46a. Employee 2 Craft Select:	46b. Injured Select:	46c. Time on Duty	46d. Regular Assignment Select:	46e. Drug & Alcohol Tested Select:	46f. In cab @ time of Accident Select:		
47a. Employee 3 Craft Select:	47b. Injured Select:	47c. Time on Duty	47d. Regular Assignment Select:	47e. Drug & Alcohol Tested Select:	47f. In cab @ time of Accident Select:		
48a. Employee 4 Craft Select:	48b. Injured Select:	48c. Time on Duty	48d. Regular Assignment Select:	48e. Drug & Alcohol Tested Select:	48f. In cab @ time of Accident Select:		
49a. Employee 5 Craft Select:	49b. Injured Select:	49c. Time on Duty	49d. Regular Assignment Select:	49e. Drug & Alcohol Tested Select:	49f. In cab @ time of Accident Select:		
50a. Contractors 2	50b. Injured Injured - Severe	50c. Time on Duty 2/19/2022 20:00	50f. In cab @ time of accident Yes	Empty			
51a. Trespassers 0	51b. Injured Select:	51f. In cab @ time of accident Select:	52a. Others		52b. Injured Select:	52f. In cab @ time of accident Select:	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Operating Practices	Track	MP&E	Signal	Grade Crossing	Drug & Alcohol	Fatigue	HazMat

The pages will appear in the order selected, you can select as many as you need.

**FEDERAL RAILROAD ADMINISTRATION
BASIC ACCIDENT INVESTIGATION**

FRA File Number

HQ-2022-1521

1. Primary Railroad			1a. Alphabetic Code		1b. Class Select:		1c. Railroad Accident Number	
2. Other Railroad/Entity Involved			2a. Alphabetic Code		2b. Class Select:		2c. Railroad Accident Number	
3. Railroad/Entity Responsible for Track Maintenance			3a. Alphabetic Code		3b. Class Select:		3c. Railroad Accident Number	
4. Date and Time of Accident (local)			6. Division/Operating Unit			6a. Subdivision		
7. State (Abbr.)	8. County		9. City/Town (closest)		10. Latitude/Longitude			
11. Milepost	12. Track Name/Number		13. Track Type Select:		14. FRA Track Class Select:		15. Timetable Direction Select:	
16. Signalization Signaled		16a. Method of Operation Signal Indication		16b. Supplemental Codes (Select up to 5)		Q	J	Select:
17. Accident Type Select:	18. Equipment Damage \$0.00		19. Track/Signal/Structure Damage \$0.00		20. Total Damage \$0.00			
21. Temperature (degrees Fahrenheit)		22. Visibility Select:		23. Weather Select:		23a. Warnings/Advisories Select:		
23b. Weather Related Conditions Select:		24. Type of Equipment Freight Train			25. Train Symbol Q426-19			
26. Trailing Tons 9,805	27. Train Length 6,956	28. Empty	29. Attended Yes	30. Remote No	31. Speed (mph) 0	31a. Estimated/Recorded Recorded Speed		
32. Total Locomotives in Accident 3	32a. Head-end Locomotives 2	32b. Mid-Train Locomotives 0	32c. Mid-Train Locomotive Position			32d. Rear-end Locomotives 1		
32e. Total Locomotives Derailed 0	32f. Head-end Derailed 0	32g. Mid-Train Derailed 0	32h. Mid-Train Derailment Position			32i. Rear-end Derailed 0		
33. Configuration Distributed Power - Single Block of DP Locomotives on Rear of Train								
33a. Locomotive Control Locomotive Control Engaged - Locomotive Control Operating at the time of the Accident								
33b. PTC Information PTC Active and in Use								
34. Total Cars in Accident 108	34a. Loaded Freight 66	34b. Loaded Passenger 0	34c. Empty Freight 42	34d. Empty Passenger 0	34e. Unoccupied Caboose/ Shoving Platform 0	34f. Occupied Caboose/ Shoving Platform 0		
35. Total Cars Derailed 0	35a. Loaded Freight 0	35b. Loaded Passenger 0	35c. Empty Freight 0	35d. Empty Passenger 0	35e. Unoccupied Caboose/ Shoving Platform 0	35f. Occupied Caboose/ Shoving Platform 0		
36a. HAZMAT in Train 19	36b. HAZMAT Derailed 0	36c. HAZMAT Releasing 0	36d. Evacuation No	36e. People 0	37. Point of Derailment		38. Mechanism of Derailment Select:	
39. First Equipment Derailed		39a. Load/Empty Select:	40. Position	41. Weight (tons)	42. AAR Car Type	43. Leading End Select:	44. First Wheel Derailed Select:	
45a. Employee 1 Craft 617	45b. Injured Not Injured	45c. Time on Duty 2/19/2022 16:30		45d. Regular Assignment Yes	45e. Drug & Alcohol Tested No	45f. In cab @ time of Accident Yes		
46a. Employee 2 Craft 608	46b. Injured Not Injured	46c. Time on Duty 2/19/2022 16:30		46d. Regular Assignment Yes	46e. Drug & Alcohol Tested No	46f. In cab @ time of Accident Yes		
47a. Employee 3 Craft Select:	47b. Injured Select:	47c. Time on Duty		47d. Regular Assignment Select:	47e. Drug & Alcohol Tested Select:	47f. In cab @ time of Accident Select:		
48a. Employee 4 Craft Select:	48b. Injured Select:	48c. Time on Duty		48d. Regular Assignment Select:	48e. Drug & Alcohol Tested Select:	48f. In cab @ time of Accident Select:		
49a. Employee 5 Craft Select:	49b. Injured Select:	49c. Time on Duty		49d. Regular Assignment Select:	49e. Drug & Alcohol Tested Select:	49f. In cab @ time of Accident Select:		
50a. Contractors	50b. Injured Select:	50c. Time on Duty		50f. In cab @ time of accident Select:	Empty			
51a. Trespassers	51b. Injured Select:	51f. In cab @ time of accident Select:		52a. Others		52b. Injured Select:	52f. In cab @ time of accident Select:	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating Practices	Track	MP&E	Signal	Grade Crossing	Drug & Alcohol	Fatigue	HazMat	
The pages will appear in the order selected, you can select as many as you need.								

FEDERAL RAILROAD ADMINISTRATION
BASIC ACCIDENT INVESTIGATION

FRA File Number

HQ-2022-1521

53. Executive Summary and FRA Investigation Findings:

On Sunday, February 20, 2022, at 12:18 a.m., EST, a Loram Switch Grinder (RGS-9) collided with the rear-end Distributed Power Unit (DPU) of locomotive No. CSXT 3144, of train Q426-19 (Q426) at Milepost (MP) QB 59.9 on the Boston Subdivision in Spencer, Worcester County, Massachusetts.

Train No. Q426 was stopped near Control Point (CP)-57 waiting on westbound traffic. The RGS-9 was operating under an EC-1e track authority in an eastbound direction on the Single Main Track in a right-hand curve when it struck the DPU at 21 mph. The RGS-9 was being operated by a Loram Roadway Worker Machine Operator 2 (Operator) with approximately 3.5 years of experience. The Operator was accompanied by a CSX Maintenance of Way Department Pilot (Pilot) with approximately 16.5 years of experience. The Pilot and Operator were occupying the operator's compartment on the leading end of the movement. Due to damage sustained to the rear access door, the Pilot and Operator had to be extracted from the operator's compartment of the machine. Both the Pilot and Operator were transported by local first responders to UMass Memorial Medical Center with serious injuries. A third roadway worker, a Loram General Laborer (Laborer), was riding in the trailing-end operator's compartment. The Laborer was transported by local first responders to UMass Memorial Medical Center with minor injuries.

Damages totaled \$1,008,729, with \$1,000,000 in damage to the RGS-9, \$8,649 to the DPU, and \$80 to the track structure. Federal Railroad Administration (FRA) post-accident drug and alcohol testing was conducted on the Pilot and Operator. The weather at the time of the collision was described as dark with clear skies and a temperature of 25°F. This collision occurred on an Amtrak route with no hazardous materials involved. This was not PTC-preventable.

It was determined that the collision was caused by CSX's failure to ensure the Pilot complied with on-track safety rules pertaining to the movement of on-track equipment. Contributing to the collision was CSX's failure to ensure all affected roadway workers understood and acknowledged that a train was ahead during an on-track safety briefing. Additionally, CSX's failure to monitor their employee's training and qualifications to ensure that a properly qualified person was supervising the RGS-9's movement contributed to this accident. Excessive fatigue was present, therefore there is a strong likelihood that fatigue contributed to the cause or severity of the collision.

The primary cause code is H402 -- Motor car or on-track equipment rules, failure to comply.

Additional contributing factors:

H199 -- Employee physical condition, other (fatigue).

H607 -- Failure to comply with restricted speed or its equivalent not in connection with a block or interlocking signal.

H997 -- Motor car or other on-track equipment rules (other than main track authority) - Failure to Comply.

H993 -- Human Factor - track (Rules 712.31, 712.17, 712.32, 704.10).

M599 -- Other miscellaneous causes (failure to conduct complete job briefing).

Click here if you need additional room for Executive Summary and FRA Investigation Findings

Click Here to add Sign Page after ALL Discipline and Summary pages have been added

FEDERAL RAILROAD ADMINISTRATION
BASIC ACCIDENT INVESTIGATION

FRA File Number

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55. Track Analysis:

FRA investigated the collision at MP QB 59.9 and observed significant damage to the leading-end of the RGS-9. Impact damage was observed on the F-end of the DPU. FRA measured the sight distance and determined that there was approximately 650 feet of visibility at the location of the collision. FRA photographed two copies of an EC-1e form. One copy was recovered from the leading-end of the RGS-9 and contained blood droplets. A second copy was obtained from the CSX Roadway Worker in Charge (RWIC), who was riding on the trailing-end of the Rail Grinder. Both copies of the EC-1e matched and contained information on Line 11 that Q426 was east ahead at MP QB 59.5.

FRA interviewed the RWIC who stated that they obtained the track authority after the Q426 was east of the location of initial occupancy at MP QB 64.0. A review of dispatch radio tapes determined that the train dispatcher ascertained the location of the head-end of train Q426 prior to issuing the EC-1e to the RWIC. The RWIC did not explicitly state that they notified the Pilot in the RGS-9 that they will be following train Q426.

FRA interviewed the Loram Superintendent (Superintendent) who was operating the Rail Grinder that was following the RGS-9. The Superintendent stated that the Operator thought the train was operating on the adjacent track, so the operator dimmed the RGS-9's headlight. A review of an outward facing camera footage verified that the headlight was dimmed approximately 20 seconds prior to impact. The headlight was put back on bright approximately 4 seconds prior to impact. This information was confirmed when FRA interviewed the Operator on March 9, 2022. The Operator stated that they dimmed the headlight when the headlight on the DPU became visible. The Operator stated that seconds prior to the impact, they recognized that the DPU was on their track and not the adjacent track, so they brightened the headlight and tried to stop the RGS-9.

The RGS-9 was operating on an ascending 0.88 percent grade when it collided with the DPU. A review of the RGS-9 event recorder showed that no brake was applied and that the throttle was engaged at the time of the collision.

CSX On-Track Safety Rule No. 712.17 requires that rail grinders operate at the lesser of 50 mph, track speed, or a speed that permits stopping within one-half the range of vision. Per this rule, Restricted Speed is not explicitly required, meaning the Operator and Pilot could operate at speeds greater than 20 mph provided they could stop short of an obstruction. If this rule was complied with, the collision would not have occurred.

CSX On-Track Safety Rule No. 712.31 requires when operating behind a train, employees must not approach a standing train closer than 200 feet unless necessary to clear the track. If this rule was complied with, the collision would not have occurred.

CSX On-Track Safety Rule No. 712.32 requires that on-track equipment stop, or at a minimum, reduce speed to 10 mph when passing a train on an adjacent track. FRA asked the Superintendent and Operator what they were required to do when they ascertained that a train was operating on the adjacent track. Neither person knew that they were required to stop or reduce speed to 10 mph. If this rule was complied with, the severity of the collision may have been reduced or the collision may not have occurred.

CSX On-Track Safety Rule No. 704.10 requires that when operating within the limits of an EC-1/EC-1e line 1 authority, employees must be qualified on the physical characteristics of the territory or be piloted by a qualified employee while traveling in the limits. According to CSX qualification records, the Pilot, who is responsible for monitoring the Operator's performance and ensuring compliance with the operating rules, was not qualified on the Boston Subdivision. The Pilot's familiarity with the physical characteristics of the working subdivision would aid in knowing the operation of a particular segment and understanding that a train may be stopped ahead of them.

A review of Roadway Worker Protection (RWP) training records showed that the Pilot failed to have been annually trained on RWP by CSX. No records were found for calendar years 2021 and 2022. CSX was unable to provide records that showed the Pilot's most recent RWP training.

FRA requested and reviewed CSX operational testing data for the 12 months prior to the date of the collision. The RWIC and Pilot were subject to operational testing. The RWIC and the Pilot were not tested on CSX On-Track Safety Rule Nos. 712.17, 712.31, 712.32, or 704.10. According to the CSX Operational Testing Program Manual (versions effective April 1, 2019, and February 1, 2022), contractors working safety-sensitive positions on CSX property are subject to operational testing while on duty. As such, the Operator should have been subject to operational testing. CSX was unable to provide records of operational tests conducted on contractors for the 12 months prior to the collision.

The RGS-9 had an inward facing camera at the front-end operator's compartment. The rear-end operator's compartment, which was where the roadway workers were at the time of the collision, did not have an inward facing camera. The RGS-9 had outward facing cameras on both ends. A review of the inward facing camera footage shows the Pilot and Operator present in the front-end operator's compartment when the EC-1e is being issued over the radio. The Pilot is observed to be copying the EC-1e. No communication between the Pilot and the RWIC is observed that would show acknowledgement of the understanding of the EC-1e authority. Additionally, the Operator did not initial the EC-1e as required by On-Track Safety Rule No. 704.6.4. After the EC-1e authority is issued over the radio, the Pilot is observed to be manipulating an electronic device while the Operator is reading the limits of the EC-1e authority to the Laborer who was in the rear operating compartment. While the Operator read back the contents of the EC-1e authority, they failed to note the information on Line 11 stating that there was a train ahead of their location.

The DPU had an outward facing camera. The footage was able to be viewed at a rate of 1/10 of a second per second. The Operator and Pilot were visible in the seconds prior to the collision. The Operator appeared to be looking forward seconds prior to the collision. The Pilot appeared to be sitting with their left shoulder leaning against the left-hand cab wall. The Pilot appeared to be looking downward, indicating that the Pilot's attention was not directed toward the movement of the RGS-9.

Conclusion:

FRA determined that two equipment operating rules were violated in the accident with the primary cause of this accident being H402 - Motor car or on-track equipment rules, failure to comply. FRA finds that operator non-compliance with the operating rule governing a speed which permits an equipment operator to work within a block of track with other equipment as long as the operator can stop within one-half of their range of vision and getting closer than 200 feet from the rear of a train. In addition, FRA also found no record of RWP training for the Pilot involved in this incident. Along with a lack of understanding of the CSX on-track safety rule requiring that equipment stop or slow to 10 mph for trains operating adjacent track (Rule 712.32). Adherence to this requirement would have greatly been reduced the severity of the accident.

55a. Evidence Collected

Training History Records
Operation Testing Records
Physical Characteristics Qualifications
Reports of Interviews

FEDERAL RAILROAD ADMINISTRATION
BASIC ACCIDENT INVESTIGATION

FRA File Number

HQ-2022-1521

57. Signal Analysis:

The PTC system that CSX has been granted Mixed System certification for and has deployed on the Boston Subdivision is the Interoperable Electronic Train Management System (I-ETMS) manufactured by Wabtec. The PTC System does not monitor the trains End-of-Train (EOT) devices. If the RMM had been PTC equipped, the PTC system would have only been enforcing the operating speed of the equipment within the EC-1 Track Authority Limits. Prior to entering the working limits, the PTC System would have had provided two notifications to the RMM Operating Crew that required separate push-button responses. However, due to the block being occupied, the PTC System would have been monitoring the RMM movement based on and in accordance with Restricted Speed. Current configuration, the PTC System would have only enforced/protected the RMM's operating speed to prevent/eliminate any over-speeding in accordance with Restricted Speed. This would not have prevented the accident.

The RMM would have been governed by CSXT policy and Operating Rules associated with movements governed by Restrict Speed or CSX Safe Way Engineering and Mechanical Rules and CSX On-Track Worker Rules.

FRA is not aware of the actions of the Train Dispatcher or if the train within the block was operating with PTC in an "Active" state. Neither of which would have prevented the accident

Conclusion: PTC would not have prevented this accident.

57a. Evidence Collected

FEDERAL RAILROAD ADMINISTRATION
BASIC ACCIDENT INVESTIGATION

FRA File Number

HQ-2022-1521

59. Drug and Alcohol Analysis:

Both the Operator and Pilot were tested for drugs and alcohol under FRA post-accident authority. Both employees tested negative for drugs and alcohol.

Conclusion:

Drug and alcohol use was not a factor in this accident.

59a. Evidence Collected

60. Fatigue Analysis:

FRA obtained payroll records for the Operator from Loram. The records were used to provide an analysis of the Operator's work schedule for 10 days prior to the collision. Additionally, during an interview with the Operator, FRA obtained information pertaining to the Operator's sleeping habits, how they felt on the day of the collision, and if they had any diagnosed sleeping disorders. FRA obtained payroll start and end times for the CSX Pilot. FRA was unable to interview the Pilot to obtain information to complete a fatigue questionnaire. A Fatigue Analyst from the Audit Management Division at FRA used this data to calculate FAID scores for the Operator and Pilot.

FRA uses an overall effectiveness rate of 63 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 is not considered as probable for an employee. The higher the FAID score, the higher fatigue exposure. Any schedule that violates the overall effectiveness rate, violates the fatigue threshold on the date of the accident, or violates the fatigue threshold in the days leading up to the accident are considered to be at risk of fatigue contributing to the accident. The fatigue questionnaires and other evidence collected are also considered when making a fatigue determination. 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.

Conclusion:

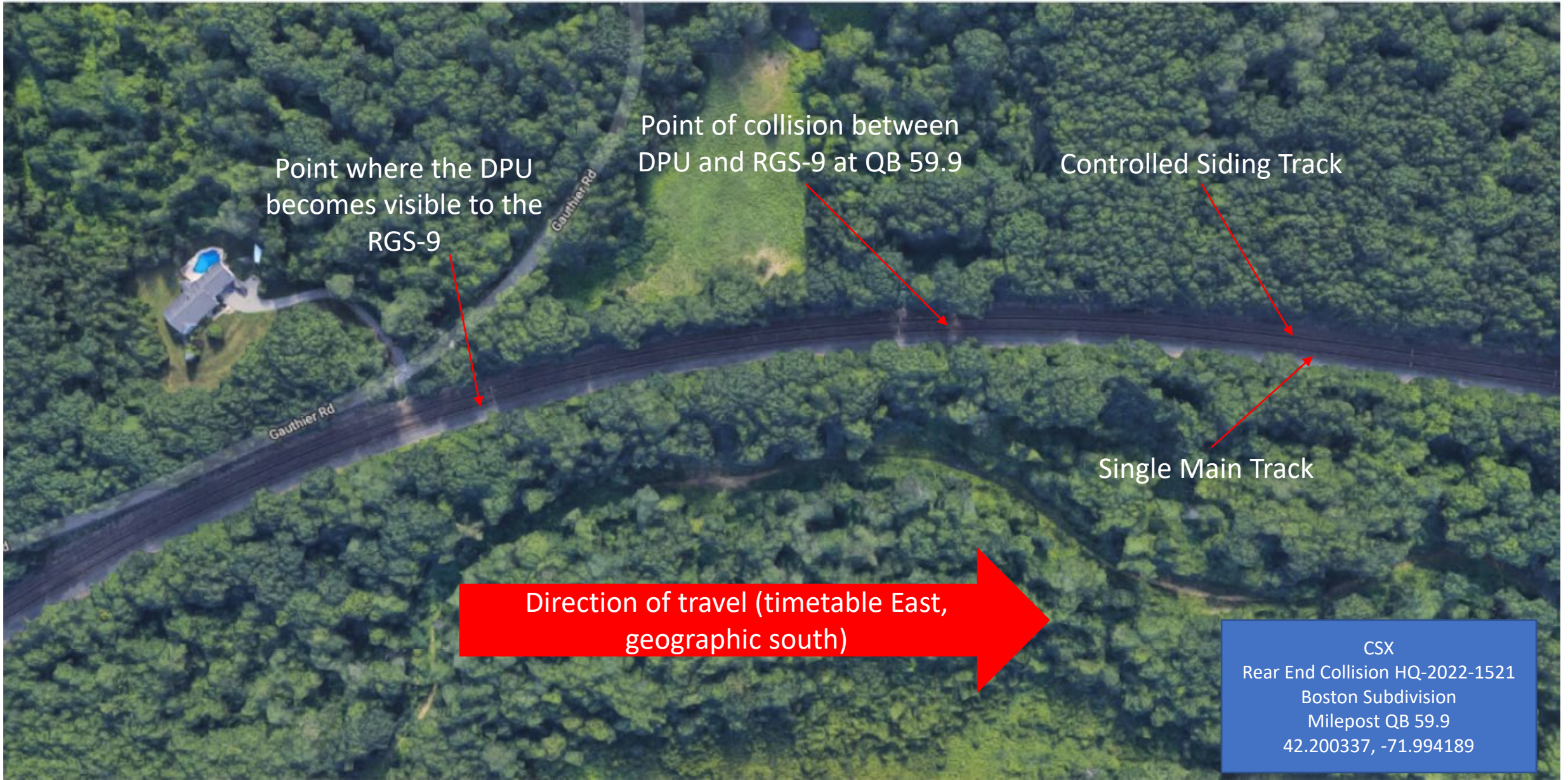
An analysis of the Operator's work schedule determined excessive fatigue risk was present. Therefore, there is a strong likelihood that fatigue contributed to the cause or severity of the accident. This conclusion was because the Operator's work schedule violated the overall effectiveness rate of ≥ 63 for ≥ 20 percent of the time. The analysis determined that the Operator was only 17.8 percent compliant with having a FAID score under 63 in their schedule. The analysis determined that the Operator had a FAID score of 85 on the shift the collision occurred, which is higher than the 63-baseline score. In the three shifts prior to the collision, the Operator's FAID score was 81 on the shift beginning on Wednesday, 91 on the shift beginning Thursday, and 119 on the shift beginning Friday. The collision occurred on the shift starting on Saturday, with a FAID score of 85. The Operator was working a day shift until the day prior to the collision. The day prior to the collision, the Operator switched to a night shift. This type of shift change is a known contributor to fatigue risk.

An analysis of the Pilot's work schedule determined excessive fatigue risk was present. Therefore, there is a strong likelihood that fatigue contributed to the cause or severity of the accident. This conclusion was because the Pilot's work schedule violated the overall effectiveness rate of ≥ 63 for ≥ 20 percent of the time. The analysis determined that the Pilot was only 19.9 percent compliant with having a FAID score under 63 in their schedule. The analysis determined that the Pilot had a FAID score of 86 on the shift the collision occurred, which is higher than the 63-baseline score. In the four shifts prior to the collision, the Pilot's FAID score was 90 for the shift beginning on Wednesday, 92 for the shift beginning Thursday morning, 77 for the shift beginning Thursday evening, 123 for the shift beginning Friday. The collision occurred on the shift starting on Saturday, with a FAID score of 86. The Pilot was working a day shift until the day prior to the collision. The day prior to the collision, the Pilot switched to a night shift. This type of shift change is a known contributor of fatigue risk.

60a. Evidence Collected

10-day work history for employees

62. Primary Cause Code H402	63. Contributing Cause Code 1 H199	64. Contributing Cause Code 2 H607
65. Contributing Cause Code 3 H997	66. Contributing Cause Code 4 H993	67. Contributing Cause Code 5 M599
68. Non-Compliance 214.311 214.315 214.343	69. Enforcement Recommended Yes	70. Mitigation Recommended No
71. Relevant Waiver No	72. Waiver Number(s)	73. NRC Report Number 1329300



Point where the DPU becomes visible to the RGS-9

Point of collision between DPU and RGS-9 at QB 59.9

Controlled Siding Track

Single Main Track

Direction of travel (timetable East, geographic south)

CSX
Rear End Collision HQ-2022-1521
Boston Subdivision
Milepost QB 59.9
42.200337, -71.994189



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph showing damage to the right-hand side of the RGS-9. This is the rear operator's compartment of the machine. Photograph is looking timetable south.

Photograph By: Owen Smith



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph showing the location the Operator and Pilot were extricated from. Damage to the machine's frame caused the door to become jammed.

Photograph By: Owen Smith

*These photographs have not been altered in any manner.



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph showing interior damage of the Operator's work area. The Operator sustained injuries to their legs.

Photograph By: Owen Smith



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph showing interior damage of the Pilot's work area. The Pilot sustained injuries to their head. Note that the brake handle was not engaged.

Photograph By: Owen Smith

*These photographs have not been altered in any manner.



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph of damage on the RGS-9. Note the extensive damage to the frame.

Photograph By: Owen Smith

*These photographs have not been altered in any manner.



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph showing damage to the pilot, auxiliary lights, knuckle, and steps of the DPU.

Photograph By: Owen Smith

*These photographs have not been altered in any manner.

CSX MOVEMENT EC-1E FORM

EC-1 NUMBER 87982 DATE 02/19/22 MILEPOST LOCATION Q1364.0 EMPLOYEE Lu Her

1A. OPR ON m TRK E 57 DIR R FRM / BTW m TRK W 79 1A - CANCEL _____ HRS. DISPR _____ TRK

1B. OPR ON _____ TRK _____ DIR _____ FRM / BTW _____ TRK 1B - CANCEL _____ HRS. DISPR _____ TRK

1C. OPR ON _____ TRK _____ DIR _____ FRM / BTW _____ TRK 1C - CANCEL _____ HRS. DISPR _____ TRK

1D. OPR ON _____ TRK _____ DIR _____ FRM / BTW _____ TRK 1D - CANCEL _____ HRS. DISPR _____ TRK

2A CROSS OVER AT _____ FROM _____ TRK TO _____ TRK
 2B CROSS OVER AT _____ FROM _____ TRK TO _____ TRK

3. _____ TRK (S) OUT-OF-SERVICE BTW MP _____ AND MP _____ IN CHARGE OF EMPLOYEE _____

4. UNTIL 0700 HRS. DATE 02/20/22 EXT UNTIL _____ HRS. DATE 1/1 EXT UNTIL _____ HRS. DATE 1/1
 EFF _____ DISPR _____ EFF _____ DISPR _____

11. OTHER INSTRUCTIONS / INFORMATION Train Q426-19 3458 Pa a Q359.5

REPORT BY LOCATION

EC-1 NO. 87982 EMPLOYEE Lu Her REPORTING R DIR OF W 79 ON m TRK. AT Q132 HRS DISPR. JSS
 EC-1 NO. _____ EMPLOYEE _____ REPORTING _____ DIR OF _____ ON _____ TRK. AT _____ HRS DISPR. _____
 EC-1 NO. _____ EMPLOYEE _____ REPORTING _____ DIR OF _____ ON _____ TRK. AT _____ HRS DISPR. _____

RECORD OF OTHER(S) WITHIN AUTHORITY 704

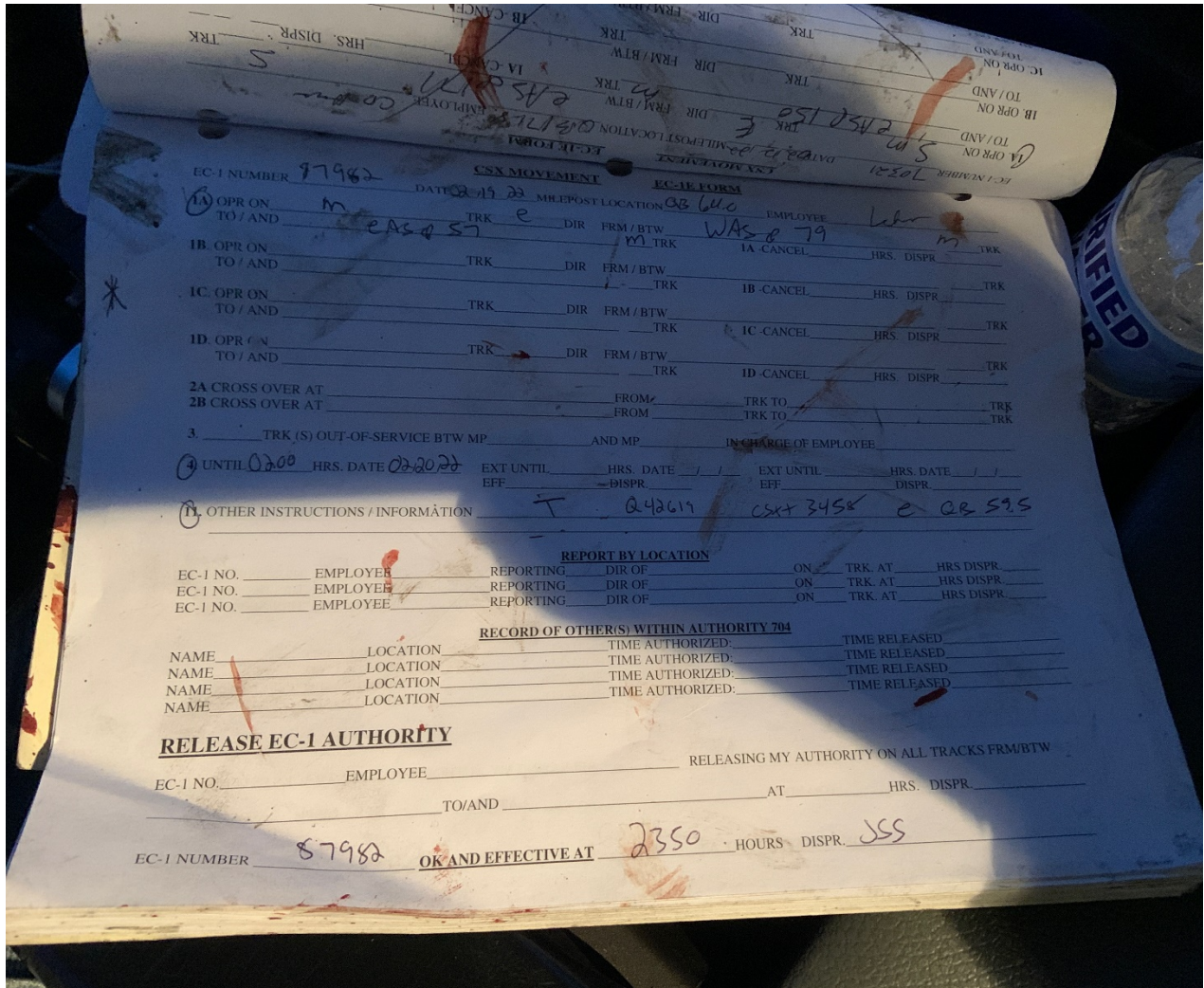
NAME	LOCATION	TIME AUTHORIZED:	TIME RELEASED

RELEASE EC-1 AUTHORITY

EC-1 NO. _____ EMPLOYEE _____ RELEASING MY AUTHORITY ON ALL TRACKS FRM/BTW _____ TO/AND _____ AT _____ HRS. DISPR _____

HQ-2022-1521
 Location: MP QB 59.9, Boston Subdivision, Spencer, MA
 Date: February 20, 2022
 Description: This was the RWIC's copy of EC-1e No. 87982. Note the information on Line 11 stating that Train Q426-19 was ahead.
 Photograph By: Owen Smith

*These photographs have not been altered in any manner.



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph of the Pilot's copy of EC-1e No. 87982. Note the information on Line 11 stating that Train Q426-19 was ahead. This copy was recovered by the CSX Roadmaster.

Photograph By: Owen Smith



HQ-2022-1521

Location: MP QB 59.9, Boston Subdivision, Spencer, MA

Date: February 20, 2022

Description: Photograph showing the approximate sight distance in daylight conditions. Note the difference in measurements based off an observer's position in the operator's compartment. The distance was determined to be approximately 650 feet. Based on ambient light conditions, the headlight was less apparent than it would be at night.

Photograph By: Owen Smith