January 25, 2021

Mr. Amit Bose
Deputy Administrator
Federal Railroad Administration
1200 New Jersey Ave., SE
Washington, DC 20590

The attached letter from the NTSB Chairman provides information about the NTSB's December 29, 2020, report *Collision of Union Pacific Railroad MGRCY04 with a Stationary Train*, *Granite Canyon, Wyoming, October 4, 2018,* RAR-20/05. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at http://www.ntsb.gov.

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendations by number (for example, R-20-28 and -29). We encourage you to submit your response to ExecutiveSecretariat@ntsb.gov. If your reply exceeds 20 megabytes, including attachments, please e-mail us at the same address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.

Executive Secretariat-LRM
Office of the Managing Director
National Transportation Safety Board
490 L'Enfant Plaza SW
Washington, DC 20594
Email: ExecutiveSecretariat@ntsb.gov

National Transportation Safety Board
Washington, DC 20594

Office of the Chairman

January 25, 2021

Mr. Amit Bose
Deputy Administrator
Federal Railroad Administration
1200 New Jersey Ave., SE
Washington, DC 20590

Dear Mr. Bose:

This letter provides information about the National Transportation Safety Board's (NTSB) December 29, 2020, report *Collision of Union Pacific Railroad MGRCY04 with a Stationary Train, Granite Canyon, Wyoming, October 4, 2018,* RAR-20/05. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at http://www.ntsb.gov.

As a result of this investigation, we identified the following safety issues:

- **Railcar maintenance, inspection, and testing.** This investigation determined that Union Pacific Railroad (UP) end-of-railcar air hose assembly inspections did not identify issues that could cause fouling or air flow restrictions. Furthermore, single railcar air brake testing was not performed on six railcars, despite a requirement for this testing to be conducted at intervals of no more than 5 years. This testing could have identified defects likely to cause brake pipe air flow restrictions.

- **Limitations of emergency brake command to end-of-train device.** Investigators learned over the course of this investigation that after a train emergency brake application is initiated, a train's head-of-train device is designed to transmit an emergency brake application signal to the train's end-of-train device for 2 minutes. If a confirmation message is not received from the end-of-train device within that 2-minute time frame, the transmission of the emergency brake command stops. The 2-minute window when the signal is transmitted from the head-of-train device to the end-of-train device would not be extended if the locomotive engineer initiated another brake application during the initial 2-minute time frame.

- **Head-of-train and end-of-train communication loss duration.** Both Association of American Railroads (AAR) standards and Federal Railroad Administration (FRA) regulations specify that a communication failure message be displayed to a locomotive engineer after train telemetry communication has been lost for 16 minutes and 30 seconds or more. For this amount of time, train crews are without knowledge of the loss of the

critical safety function associated with emergency braking provided by the end-of-train device.

- **Grade locations on railroad lines with communication loss.** Radio frequency limitations are common in the railroad environment. Factors such as train length, track curvature, and physical terrain obstructions can lead to loss of communication between the head-of-train and end-of-train devices. Railroads need to assess the grade territories over which they operate for continuous communication between these devices. When areas that are prone to communication loss are identified, railroads should take remedial action.

Accordingly, the NTSB makes the following safety recommendations to the FRA. Additional information regarding these recommendations can be found in the noted sections of the report.

- Revise Title 49 *Code of Federal Regulations Part 232* to require more frequent communication checks between a head-of-train device and an end-of-train device. (R-20-28) (See section 3.4.)

- Require that the emergency brake signal transmission is repeated until received by the end-of-train device. (R-20-29) (See section 3.5.)

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendation by number (Safety Recommendation R-20-28 and -29). We encourage you to submit your response to ExecutiveSecretariat@ntsb.gov. If your reply, including attachments, exceeds 20 megabytes, please e-mail us at the same address for instructions. Please do not submit both an electronic copy and a hard copy of the same response.

Sincerely,

[Original Signed]

Robert L. Sumwalt, III
Chairman

January 25, 2021

Mr. Chuck Baker
President
American Short Line and Regional Railroad Association
50 F St., NW
Suite 500
Washington, DC 20001

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We are providing the following information to urge the American Short Line and Regional Railroad Association to act on the safety recommendation in this letter because we believe your organization can help reduce the risk of future accidents. For more information about the NTSB and our recommendation process, please see the attached one-page summary.

This letter provides information about the National Transportation Safety Board's (NTSB) December 29, 2020, report *Collision of Union Pacific Railroad MGRCY04 with a Stationary Train, Granite Canyon, Wyoming, October 4, 2018,* RAR-20/05. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at http://www.ntsb.gov.

As a result of this investigation, we identified the following safety issues:

- **Railcar maintenance, inspection, and testing.** This investigation determined that Union Pacific Railroad (UP) end-of-railcar air hose assembly inspections did not identify issues that could cause fouling or air flow restrictions. Furthermore, single railcar air brake testing was not performed on six railcars, despite a requirement for this testing to be conducted at intervals of no more than 5 years. This testing could have identified defects likely to cause brake pipe air flow restrictions.

- **Limitations of emergency brake command to end-of-train device.** Investigators learned over the course of this investigation that after a train emergency brake application is initiated, a train's head-of-train device is designed to transmit an emergency brake

application signal to the train's end-of-train device for 2 minutes. If a confirmation message is not received from the end-of-train device within that 2-minute time frame, the transmission of the emergency brake command stops. The 2-minute window when the signal is transmitted from the head-of-train device to the end-of-train device would not be extended if the locomotive engineer initiated another brake application during the initial 2-minute time frame.

- **Head-of-train and end-of-train communication loss duration.** Both Association of American Railroads (AAR) standards and Federal Railroad Administration (FRA) regulations specify that a communication failure message be displayed to a locomotive engineer after train telemetry communication has been lost for 16 minutes and 30 seconds or more. For this amount of time, train crews are without knowledge of the loss of the critical safety function associated with emergency braking provided by the end-of-train device.

- **Grade locations on railroad lines with communication loss.** Radio frequency limitations are common in the railroad environment. Factors such as train length, track curvature, and physical terrain obstructions can lead to loss of communication between the head-of-train and end-of-train devices. Railroads need to assess the grade territories over which they operate for continuous communication between these devices. When areas that are prone to communication loss are identified, railroads should take remedial action.

Accordingly, the NTSB makes the following safety recommendation to the AAR and the American Short Line and Regional Railroad Association. Additional information regarding this recommendation can be found in the noted section of the report.

- Alert your member carriers to (1) conduct analysis of radio frequency propagation in grade territories over which they operate to identify areas where head-of-train device and end-of-train device communication may be lost and (2) make remediations to provide continuous head-of-train device and end-of-train device communication. (R-20-30) (See section 3.4.)

The NTSB is vitally interested in this recommendation because it is designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement this recommendation. When replying, please refer to the safety recommendation by number (Safety Recommendation R-20-30). We encourage you to submit your response to ExecutiveSecretariat@ntsb.gov. If your reply, including attachments, exceeds 20 megabytes, please e-mail us at the same address for instructions. Please do not submit both an electronic copy and a hard copy of the same response.

Sincerely,

[Original Signed]

Robert L. Sumwalt, III
Chairman

January 25, 2021

Mr. Ian Jefferies
President and Chief Executive Officer
Association of American Railroads
425 3rd St., SW
Washington, DC 20024

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In addition, the NTSB makes the following safety recommendation to the AAR.

- Revise your *Manual of Standards and Recommended Practices, Locomotive Electronics and Train Consist System Architecture*, Standard S-9152.v2.2, Paragraph 3.8.8 to develop a communication scheme that will continue to transmit an emergency air brake command to the end-of-train device until a confirmation message or a decrease in brake pipe pressure message is received by the head-of-train device. (R-20-31) (See section 3.5.)

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