BMWED Party Submission

Reed, PA
RRD22LR003

(25 pages)

BROTHERHOOD OF MAINTENANCE OF WAY EMPLOYES

A DIVISION OF THE INTERNATIONAL BROTHERHOOD OF TEAMSTERS, RAIL CONFERENCE

BEFORE THE NATIONAL TRANSPORTATION SAFETY BOARD

NTSB Accident Number:
RRD22LR003
December 8, 2021

Proposed findings, probable cause, and safety recommendations, in connection with the fatal injury of a National Salvage Employee working on Norfolk Southern Railway Company- Buffalo Line near Reed, Pennsylvania

Director of Safety Roy Morrison

Final Submission

The Brotherhood of Maintenance of Way Employes (BMWED), a division of the International Brotherhood of Teamsters ("IBT"), was granted party status by the Board in the above-referenced investigation. BMWED respectfully submits these proposed findings, probable cause, and safety recommendations to the Board for consideration.

Accident Synopsis

On December 8, 2021, Norfolk Southern Railroad's (NS) R-12 rail gang was tasked to remove and install 1,342 feet of continuous welded rail between milepost BR295.00 and milepost BR 295.25 on the NS Main track 1 Buffalo Line near Reed, Pennsylvania. The R-12 work group performs "curve patchwork" [1] and consists of about 25 employees and 15 pieces of rail-bound roadway maintenance machines, including two contract employees from National Salvage and Service Corporation (NSSC). The line runs in a north-south direction with a siding located on the east side of the main track near the elevated state roadway, Highway 147, also known as South River Road. The location is in a rural, wooded area on the west side of the Susquehanna River.

The R-12 conducted their job safety briefings at the South Ferry Siding parking lot. The R-12 supervisor, the R-12 foreman, and the local qualified roadway worker in charge (RWIC) conducted the briefings. After the briefings were complete, the operators started their equipment and performed daily walk-around inspections per FRA §214.527. The operator stated that while conducting his equipment inspections, he discovered no issues with his spiking machine. He also said that if he does discover problems with his machine, he immediately reports the issue to the mechanics for repairs. After the working limits were established by the RWIC between Control Points North and South Ferry, the operators were instructed to move their equipment south out of the siding track and, once clear, to reverse their equipment back north at the start of the job

[1] Curve patch work is when track crews replace old worn continuous welded rail with new continuous welded rail.

location at North Ferry. Once the work equipment was in place, the work crews were instructed to remove and install new replacement rails along the high side of the curve.

After the old rail was removed and the new rail installed, the spiking machine involved in the accident (known as Spiker No. 2) was installing cut spikes to secure the newly installed continuous welded rail (CWR) to the crossties. At the time, Spiker No. 2 was working southward and was situated between two other working spiking machines to the front and rear. The operator of the second machine, Spiker No. 2, observed that he had closed the gap between his equipment and Spiker No. 1 and decided to back up to assist Spiker No. 3. The NSSC employee was assigned to work with the NS gang that was replacing rail. The NSSC employee was marking rail to be removed and collected by other members of the work crew positioned behind Spiker No. 3. The NSSC employee was seen crossing from the east side to the west side of the track in front of Spiker No. 1 approximately five to seven minutes before the accident. He then crossed behind Spiker No. 1 from the west side to the east side of the track, continuing past Spiker No. 2 in a north direction between the main track and siding track. Subsequently, Spiker No. 2 had worked up to Spiker No. 1. Spiker No. 2's operator changed his spiking pattern from rail-spike pattern to anchor-spike pattern and spiked the tie he was on. He said he blew his horn three times, looked in the left rear-view mirror, and moved the machine in reverse, traveling north to help Spiker No. 3. During the reverse movement, Spiker No. 2 struck the NSSC employee, coming to a stop on top of him. The operator immediately called for help over the radio. Crews tried to utilize the equipment's turntable to free the NSSC employee but were unsuccessful. A crane was later used to lift the equipment to extricate the injured worker. The employee sustained fatal injuries as a result of the accident. Information obtained at the scene, when the accident occurred, the employee stood within the track gauge.

Figure 1: Rear of Spiker No. 2, viewed from the north.

Accident Site Description

The accident occurred in a right-hand 1.90 average degree curve, with two inches of super-elevation. The main track was constructed with wood crossties measuring nine inches by seven inches and eight foot six inches long, spaced on 19.5-inch centers (nominal). Both running rail sections consisted of 136-pound RE—continuous welded rail. The newly installed running rails were fastened to the crossties through 18" double shoulder tie plates with standard cut spikes to maintain and secure the track gauge. The cut spike pattern

consisted of one rail hold spike and one plate holding (back-up) spike on the field side of the rail, and one rail holding spike and one plate holding spike on the gauge side of the rail. Every other crosstie was box anchored with locking style anchors to assist in restraining longitudinal movement of the continuous welded rail due to train dynamics and thermal forces. The track structure was supported with a 2.5" fractured ballast, and both shoulder and crib ballast sections were adequate. The main track at the accident site is classified as an FRA Class 4 track with a maximum authorized speed (MAS) of 50 mph for a freight train and inspected per FRA §213.233 twice weekly with at least one calendar day between inspections. No passenger trains operate on the Buffalo Main Line track.

Post-Accident Site Measurements

Before NTSB's arrival, NS representatives had staged the accident track equipment back to their original "*time of accident*" locations for NTSB and FRA investigative purposes. At the accident site, investigators discovered several "witness" marks on the tie places and crossties, busted paint cans, a broken measuring wheel, and other personal belongings. The track group took accident measures at the following locations:

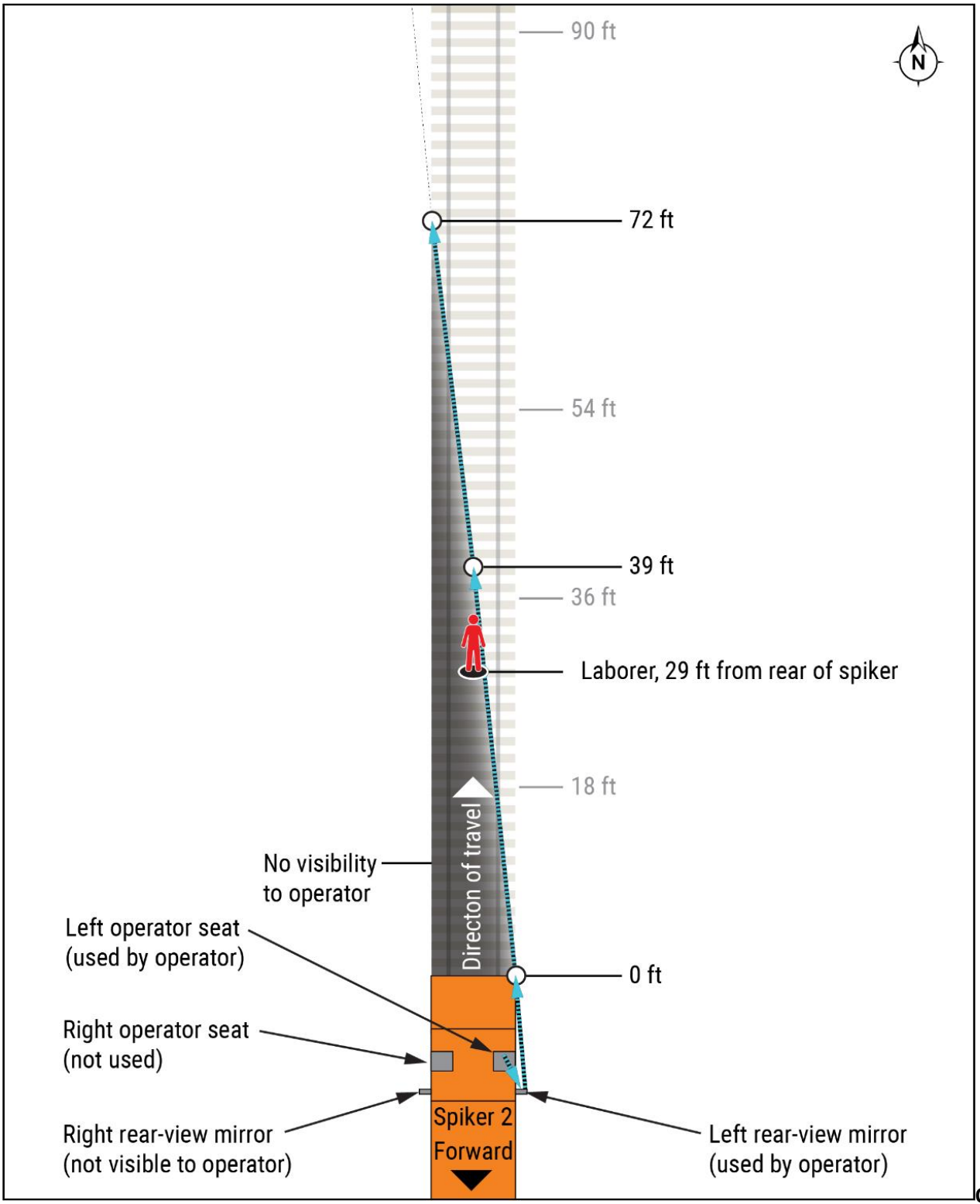
- Rear of Spiker No. 2 to point-of-contact with roadway worker = 29.11 feet
- Rear of Spiker No. 2 to front of Spiker No. 3 = 126.6 feet
- Spiker No. 3 operator seat to point-of-contact = 114.10 feet
- Front of Spiker No. 2 to lead Spiker No. 1 = 34.11 feet

Investigators conducted a visibility observation test. Two investigators roughly about the same sizes as the Spiker No. 2 operator and the NSSC employee were chosen. One investigator sat in the cab of Spiker No. 2 and looked out the left rear-view mirror while sitting in the left seat.[2] The right mirror is not visible from this position. The other investigator moved to different positions behind the spiker. Specifically, the team member

[2] This was the position of the Spiker No. 2 operator at the time of the accident.

stood on the left side of the track (on the tie – outside the gauge) and walked north (away from the spiker) until partially visible, then fully visible, and the distances were noted (see chart below). Making the same observations and having the team member stand on both the center and right sides of the track was recorded.

Table 1. Spiker 2 Visualization of Visibility Observation Test (Provided by NTSB)



On

Site Sound Level Testing

Occupational Safety and Health Administration (OSHA) assisted the NTSB in assessing the sound levels associated with machinery involved in the non-OSHA-related fatality investigation of an NSSC employee along the NS Railroad tracks in Reed Township, Dauphin County, Pennsylvania. The compliance officer used a Type 1 Sound Level Measuring Device to collect the sound pressure levels.

Stationary Horn Spiker 2: The first sound level reading was taken at approximately 1300 hours at the point of contact while Spiker No. 2 and Spiker No. 3 were revving at operating power about forty (40) feet away. The result was 71.5 "A" Weighted Slow Response decibels (dBA). When the horn sounded on Spiker No. 2, the reading was 72.5 dBA. Being close to a major road, the traffic volume and vehicle type affected the readings. For example, at 1311 hours, an ambulance passed the accident scene, and the reading was 83 dBA.

Movement Tests: These sound level readings were taken to allow the NTSB to evaluate noise levels when the spiker machine performed specific actions. The chart below details the reading results and actions of one or both spiker machines

Table 2 - Noise Levels as Measured by OSHA Representative

Spiker 2

Throttle Position	Front	Center	Rear
Spike Machine Travelling Forward	70.2 Dba	71.6 dBA	70.2 dBA
Spiker Machine Travelling in Reverse	70.5 Dba	70.9 dBA	71.6 dBA

Spiker 2 with Horn Reconnected

Throttle Position	Front	Center	Rear
Spike Machine Travelling Forward	70.2 Dba	71.6 dBA	70.2 dBA
Spiker Machine Travelling in Reverse	70.5 Dba	70.9 dBA	71.6 dBA

Spiker No. 2 (GS 15022)

Spiker No. GS 15022 was the second spiker in Gang R12 and the RMM involved in this fatal accident. It was built in December 2015 by Nordco, Inc. The machine is known as a "SE Hammer, Production Spike Driver." A spiker is a rail-bound machine designed to drive spikes into place using opposing hydraulically driven, high-impact spiking hammers. The spikes are fed from a bin on the rear of the machine into a loading mechanism by the operator or a track laborer in the cab. The enclosed climate-controlled cab is designed with seating for two spike hammer (gun) operators (one on each side) and one feed tray operator (laborer). The machine is powered by a 140-horsepower, 140 Amp alternator, Tier III diesel engine. Travel along the rail is accomplished with a variable hydrostatic pump and motors through a four-wheel, dual-axle, chain-driven propulsion system. The friction brake system includes spring-applied, hydraulically released brake shoes on each of the four wheels. The machine includes a 90-gallon diesel fuel tank and a 110-gallon hydraulic fluid tank. The operator controls the system with electronic joysticks positioned at both operator seats.

Figure 2. Photograph of NS Spiker GS 15022 near its post-accident resting position (NSTB Photo)

Horn:

Investigators tested the horns on all three spikers in the R12 Gang. First, investigators tested the roof-mounted electric horn on Spiker 2. Engines of both Spiker 3 and Spiker 2 were started and brought to normal running rpm levels. An Officer from the OSHA was positioned with his Type 1 Sound Level Measuring Device at the approximate point of impact. In contrast, the spikers were placed at their approximate location just before the backup movement. The background noise level was approximately 71.5 "A" Weighted Slow Response decibels (dBA). The additional noise level from the horn was unreadable when the operator sounded three short blasts. This is due to the dosimeter measuring equipment, which is "slow weighted." Slow weighted dosimeter settings take about one sample per second. The noise level when the horn sounded continuous was 72.5 dBA. Investigators also recorded the sound readings for the horn on Spiker 3. Approximately 29 feet in

front of the spiker, the reading was 79 dBA when it sounded continuous. About 29 feet behind the spiker, the reading was 76.2 dBA.

During subsequent investigative activities on the following days, investigators noted the horn on Spiker GS 16043 was noticeably louder than Spikers 2 or 3. Investigators were able to secure Spiker 2 in a secure NS facility in Enola, PA, on December 13, 2021. At this location, an investigator positioned himself on the roof of the spiker. The horn system consists of four trumpets, two facing forward and two facing backward. Investigators cycled through each button in the cab for horn activation. It was determined that only one trumpet produced sound, a front-facing trumpet. The other front-facing trumpet, and both rear-facing trumpets, did not make any audible sound. Investigators returned to the spiker on January 25, 2022. The rear cover of the leftmost, rear-facing horn was removed. The interior of the horn motor coil, contacts, and the plate were photographed. All these internal parts were heavily corroded and rusted.

Figure 3. The interior condition of a horn trumpet.

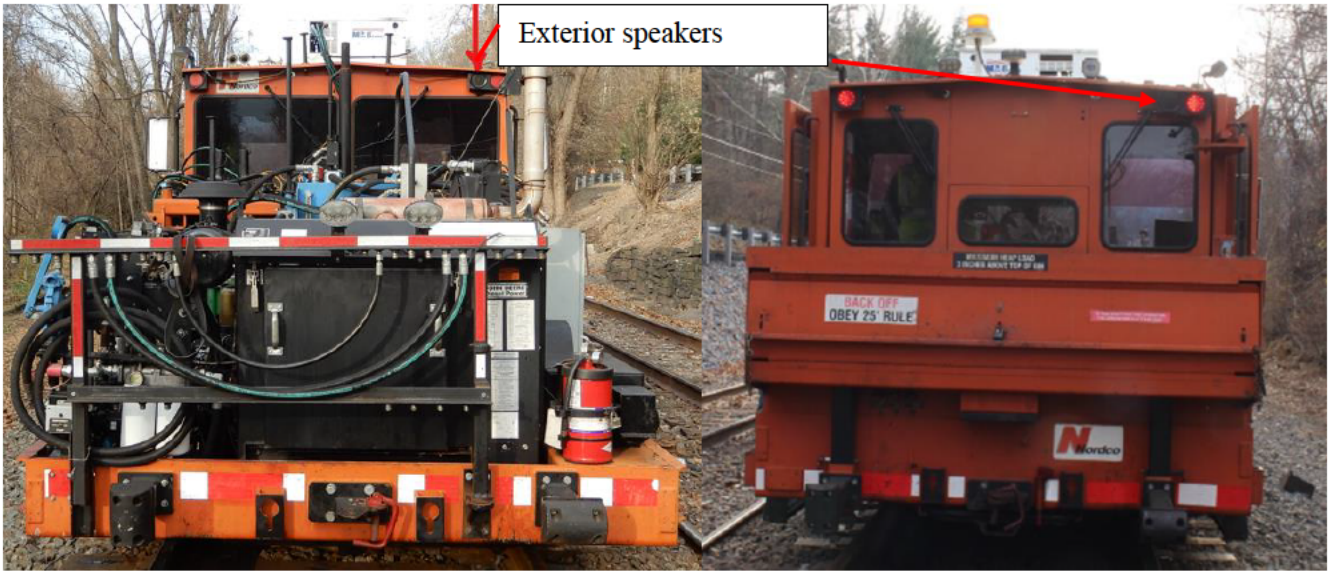
The horn was reassembled. The forward-facing and the rear-facing banks of horns were unplugged from the roof-mounted connectors. A new, known working set of horns were temporarily connected to each horn connector (one for the forward-facing bank, one for the rearward-facing bank). The horn circuit was tested from a horn button in the cab; the new horns properly functioned while plugged into each connector.

Change of Direction Alarm

Spiker GS 15022 is equipped with an automatic change-of-direction alarm which is designed to activate based on the position of a "Forward/Reverse Travel Switch" and the direction of travel pedal used by the operator. The "Forward/Reverse Switch" is a three-position toggle switch (Forward/Center/Reverse) located on the Main Control Cabinet (MCC).

Figure 4. GS 15022 MCC with Forward/Reverse Travel Switch. Icons indicate the intended function of lights/alarms. (NTSB Photograph)

The change-of-direction alarm system has two exterior speakers, one mounted on the upper front left corner of the operating cab and one mounted on the upper rear right corner of the cab.



Initial on-scene testing revealed that the change of direction system was not working as intended. The initial investigation also revealed that the rear exterior speaker was unplugged; investigators plugged it back in. Even after being reconnected to the system, the speaker did not perform as designed.

On December 13, 2021, Investigators conducted additional testing regarding the Change-of-Direction Alarm for this new test. One can say that the results were different from the field testing. And one can also say that unexpected results were obtained compared to the expected "as-designed" results on Spiker GS 15022. On January 25, 2022, investigators reconvened in Enola Yard, PA, to execute a written test plan designed to determine the cause(s) for the unexpected results observed on the automatic change of direction alarm (ACDA) system. A thorough investigation revealed that the hydrostatic travel pump and the left travel pedal plugs were reversed. All of the affected plugs were returned to their as-designed locations, and the computer now showed the ACDA to function as intended.

Toggle Switch Position	Direction of Movement	Expected Result	As Found Condition	After plugging in rear speaker	After swapping Pedal Plugs and Hydrostatic Pump Plugs
Forward	Forward	No Alarm	Rear Speaker Only	Yes Alarm (85.4 dBA) Rear Speaker	No Alarm
Forward	Reverse	Rear Speaker Only	No Alarm	No Alarm (70.2 dBA)	Rear Speaker Only
Center	Forward	Both Speakers	Both Speakers	Yes Alarm (85.5 dBA) Both Speakers	Both Speakers
Center	Reverse	Both Speakers	Both Speakers	Yes Alarm (85.6 dBA) Both Speakers	Both Speakers
Reverse	Forward	Front Speaker Only	No Alarm	No Alarm (70.2 dBA)	Front Speaker Only
Reverse	Reverse	No Alarm	Front Speaker Only	Yes Alarm (71.5 dBA) Front Speaker	No Alarm

Table 3- Spiker No. 2 (GS 15022) Results of the "6-point testing"

Probable Cause

BMWED concludes that the probable cause of the December 8, 2021, fatal accident is a combination of fact:

1. When the fatally injured NSSC employee stepped into the gauge of the track well within the NS 25' rule, the operator could not see him by the design of the Nordco SE Auto Spiker GS 15022.

2. The mechanical condition of the machine created a circumstance during a backup move on the machine (GS 15022) where the total horn was functioning at 25% of the Nordco design. The one operational horn pointing away from the NSSC employee and the automatic change of direction alarm not functioning created a situation where the NSSC employee had no warning, notice, or alarm of a backup movement.

Proposed Recommendations

Federal Railroad Administration:

1. Amend 214.527 to require the daily documentation of the pre-work inspection to ensure the inspections are done within regulatory guidelines. (Example)

214.527 On-track roadway maintenance machines; inspection for compliance and schedule for repairs.

(a) The operator of an on-track roadway maintenance machine shall ~~check~~ inspect the machine components for compliance with this subpart, prior to using the machine at the start of the operator's work shift.

(b) Each employer shall maintain inspection records pertaining to compliance with this section. Records may be kept on forms provided by the employer or by electronic means. The employer shall retain each record for at least one year, and the records shall be made available for inspection and copying during normal business hours by representatives of FRA and States participating under § 212 of this chapter. The records may be kept on the on-track roadway maintenance machine or hi-rail vehicle or at a location designated by the employer.

(~~b~~c) Any non-complying condition that cannot be repaired immediately shall be tagged and dated in a manner prescribed by the employer and reported to the designated official.

(~~c~~d) The operation of an on-track roadway maintenance machine with a non-complying condition shall be governed by the following requirements:

(1) An on-track roadway maintenance machine with headlights or work lights that are not in compliance may be operated for a period not exceeding seven calendar days and only during the period between one-half hour before sunrise and one-half hour after sunset;

(2) A portable horn may be substituted for a non-complying or missing horn for a period not exceeding seven calendar days;

(3) A fire extinguisher readily available for use may temporarily replace a missing, defective or discharged fire extinguisher on a new on-track roadway maintenance machine for a period not exceeding seven calendar days, pending the permanent replacement or repair of the missing, defective or used fire extinguisher;

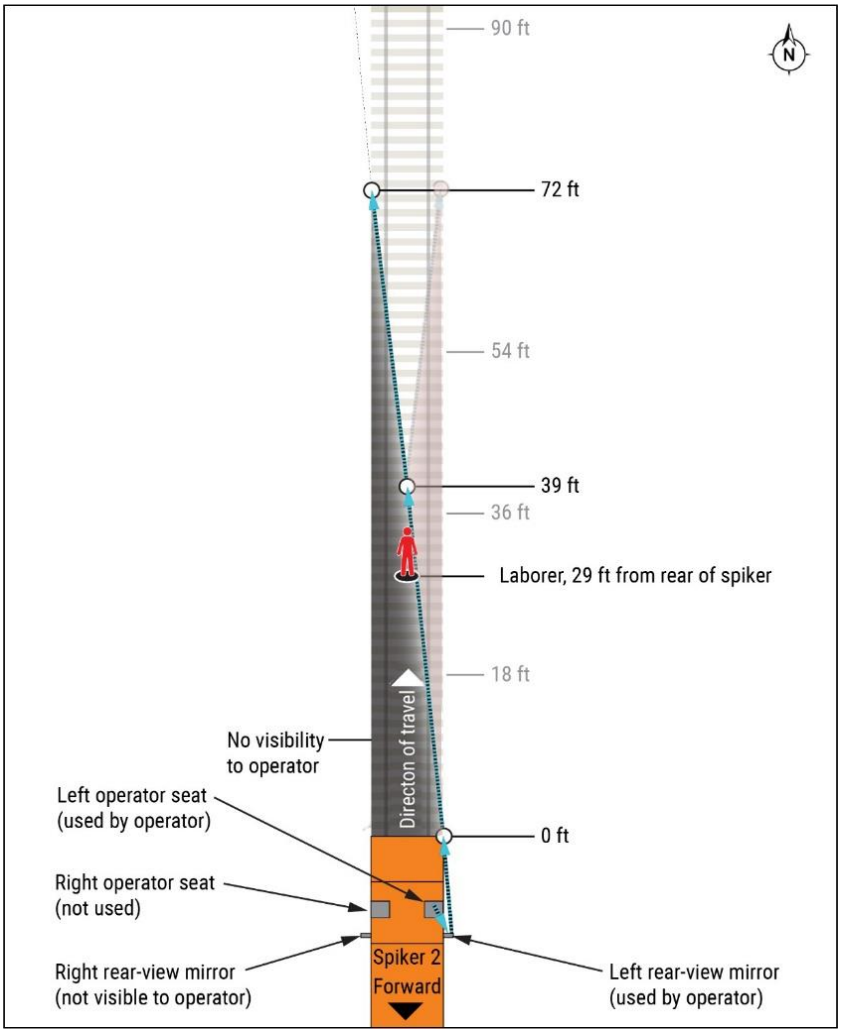
(4) Non-complying automatic change-of-direction alarms, backup alarms, and 360-degree intermittent warning lights or beacons shall be repaired or replaced as soon as practicable within seven calendar days; and

(5) A structurally defective or missing operator's seat shall be replaced or repaired within 24 hours or by the start of the machine's next tour of duty, whichever is later. The machine may be operated for the remainder of the operator's tour of duty if the defective or missing operator's seat does not prevent its safe operation.

2. Research and develop a defined decibels warning standard to be inserted into §49 CFR 214.511. FRA should look to 49 CFR § 229.129 - Locomotive horn for an existing example of what should be developed for RMM.

Norfolk Southern Railroad:

1. Create a formal process to document the daily inspection conducted by the RMM operator. (See Appendix A for two examples)
2. Develop annual training on how to identify NSRR-approved PPE. As well as how to approach a coworker or contractor who is out of compliance.
3. Change spikers spacing rules from 25' to 50' as shown in the diagram.[3] Workers in the track gauge are visible until about the 40' mark, regardless of which seat operates the machine.



Nordco INC.:

[3] Diagram created from NTSB on site visibility test. In this diagram both operator seats are taken into consideration.

1. Evaluate all Nordoco equipment designs for blind spot identification and initiate a blind spot elimination program.
2. Design a retro fit blind spot elimination kit that can be easily installed on any existing Nordco equipment.
3. Develop a program to encourage all owners of existing Nordco equipment to install the newly designed blind spot elimination kit.

National Salvage and Service Corporation (NSSC):

1. Develop and train a company procedure requiring notification each time an employee is going to enter the gauge of the track with in 50’ behind any piece of On-track equipment.
2. Develop annual training on PPE requirements and differences for every railroad NSSC operates.

The Association of American Railroads (AAR):

1. Develop an easy-to-use table to identify all PPE requirements based on the railroad to be worked.

Appendix A

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Daily / Weekly Maintenance and Inspection log for CSX Work Equipment

Cab & Safety Appliances	Circle one Pass	Fail		Circle one Pass	Fail
Wind shield ★ (if applicable)	P	F	First Aid Kit ★	P	F
Work/Travel/Strobe Lights ★	P	F	Steps/Handrails/Safety Guards	P	F
Horn/Back-up Alert ★	P	F	Fire Ext. inspection up to date ★	P	F
Mirrors/Wipers ★	P	F	AC/Heater/Fans ★	P	F
Seat/Seat belt ★	P	F	Windows/Doors/Entry way	P	F
Towbars/Hitch/Hitchpins ★	P	F	Emergency Cut-off	P	F
Hand holds/Hand rails ★	P	F	**Travel system**		
Floors, decks, stairs ladders ★	P	F	Brakes Adjustec/Operation/Shoes ★	P	F
Overhead covers ★	P	F	Bearings, U-Joints, Chains greased	P	F
Collision avoidance system	P	F	Bolts tight	P	F
Engine			Travel/Work Speed	P	F
Shuts off/starts from cab/seat	P	F	Wheels Flanges/Tread	P	F
Oil level/Air intake/filter	P	F	**Work system/components**		
Radiator clean/damaged/Full	P	F	Lock-up devices/Turntable ★	P	F
Belts/Pulleys worn/loose	P	F	Operator controls	P	F
Hydraulic System			Bolts Missing/Tight	P	F
Pumps/Motors/Valves	P	F	Pins/Bushings Worn/Tight	P	F
Leaks	P	F	Grease fittings	P	F
Hoses/Cylinders	P	F	Workhead	P	F
Air system			Frame cracks	P	F
Hoses/Leaks	P	F	Operator manual on machine	P	F
Drain Weekly	P	F	**Electrical system**		
			Wiring/Switches/Gauges	P	F
(★) FRA Requirements for Daily Inspections			Battery/cables/charging sys.	P	F

Note: Every item may not apply to every machine.

Date	M	T	W	T	F	S	S
Inspected By							

Mile Post/Track #	Time	Approx. Speed	Approx. Distance To Stop	Rail Condition

Comments:(Explain any exceptions/failures noted)

Machine greased daily	Yes	No	Operator has necessary tools	Yes	No
Last engine oil change ____/____/____			Last Hyd. Oil filter change ____/____/____		
Engine oil use per day (est.) _____ qt.			Hyd. oil use per day (est.) _____ gal.		
System Air pressure _____ psi.			Last Air filter change ____/____/____		

Machine# _____ **Team#** _____

Machine operator 1 sign

Machine operator 2 sign

Daily lubrication done as per manufacturer's specifications. Drain air tanks at the end of day.

Lockout/Tagout required while performing maintenance

S/C# 4605943987.1 Rev. 00/07

Machine # _____

Serial # _____

Starting Date _____

Ending Date _____

PB-21434
Rev. 11/18

DAILY PREVENTATIVE MAINTENANCE LOG

Logbook Oversight Inspection – Manager, Foreman and Mechanic

Date	Print Name	Employee ID#
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		

Daily Maintenance and Inspection for Work Equipment

Machine #_____ Current Hour Meter Reading _____ Gang #_____ Date of Inspection____/____/____

Work Location_____ Subdivision_____ State_____

General – Walk Around	Exception
☐ Locks, pins & keepers in place	☐
☐ Guards in place	☐
☐ Check for cracks or unusual wear	☐
☐ Hydraulic hoses and cracked or leaking	☐
☐ Lubricated per Operator's Manual	☐
☐ Lubrication placard	☐
☐ Operator's Manual available	☐
☐ Lockout/tagout equipment available	☐
☐ Instructions on riders posted or available	☐
☐ Handholds & handrails	☐
☐ Floors, decks, ladders & steps	☐
☐ Loose bolts, nuts, fittings, etc.	☐
☐ Overhead cover, if equipped	☐
☐ Proper PPE available	☐
☐ Operator tools on machine	☐
☐ 5S parts on machine	☐
☐ Light weight of machine posted	☐
☐ Safety decals in place & readable	☐
☐ Inspections decal in place & readable	☐
Engine Compartment	
☐ Fluid levels	☐
☐ Oil (fluid added _____)	☐
☐ Coolant (fluid added _____)	☐
☐ Hydraulic (fluid added _____)	☐
☐ Belts & hoses	☐
☐ Fan condition	☐
☐ Fuel system (filter & leaks)	☐
☐ Exhaust system	☐
Drive Assembly	
☐ Brake systems fully operational (adj. made _____)	☐
☐ Hy-rail assembly (pins, keepers & wheels)	☐
☐ Tire /wheel condition	☐
(tread, lug/axle nuts, flange, air pressure, etc.)	☐
☐ Axles & U-joints (axle locks)	☐
☐ Tire rod ends	☐
☐ Chains & sprockets	☐

Cab	Exception
☐ Housekeeping	☐
☐ Gauges	☐
☐ Air cleaner indicator	☐
☐ Lights	☐
☐ Headlight	☐
☐ Work lights	☐
☐ Brake lights or reflective material	☐
☐ Strobe light	☐
☐ Doors, windows, latches, glass, etc.	☐
☐ Rearview mirror	☐
☐ Horn	☐
☐ Siren, if equipped	☐
☐ Safety glass & windshield wipers, if equipped	☐
☐ Back-up alarm	☐
☐ Machine controls working properly	☐
☐ Grease gun	☐
☐ Fire extinguisher (Inspection date _____)	☐
☐ First aid kit	☐
☐ Flagging kit, if lead or trailing equipment	☐
☐ Orange cones	☐
☐ "Danger – Live Track" signs	☐
☐ Environmental controls, if equipped	☐
☐ Heater	☐
☐ Ventilation	☐
☐ Air conditioning	☐
☐ Operator's seat(s), if equipped	☐
☐ Seat belts, if equipped	☐
Attachments, if equipped	
☐ Magnet generator engine	☐
☐ Magnet leads & connections	☐
☐ Crane, boom, buckets, forks, under cutter, tamper, tie inserter condition (*circle item with exception*)	☐
☐ Slings, chains, wire rope & end fittings	☐
☐ Tow bar & hitch	☐
☐ Turntable restraint or warning light	☐

Overall Condition

Yes / No – Safe to operate? (if "No", supervisor must review)
Date Out-of-Service _____/_____/_____

Yes / No – RMM safety defects noted?
(if "Yes", display tag, provide SAP safety work order & comments)
See RMM Section to record Defect

Print Name _____ Emp. ID_____

Comments (note all repairs performed or required):

_____

_____

_____

_____

Roadway Maintenance Machines – RMM Section

Date ___/___/___ SAP Safety Order # ____________ Print Name ____________ Employee ID# ________

RMM Defect ____

Repaired by Information ___/___/___ Print Name ____________ Employee ID# ________

Date ___/___/___ SAP Safety Order # ____________ Print Name ____________ Employee ID# ________

RMM Defect ____

Repaired by Information ___/___/___ Print Name ____________ Employee ID# ________

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Date ___/___/___ SAP Safety Order # ____________ Print Name ____________ Employee ID# ________

RMM Defect ____

Repaired by Information ___/___/___ Print Name ____________ Employee ID# ________

Daily Maintenance and Inspection for Work Equipment

Machine #____________ Current Hour Meter Reading ________ Gang #________ Date of Inspection ________

Work Location ____________________ Subdivision ____________________ State ________

General – Walk Around	Exception
☐ Locks, pins & keepers in place	☐
☐ Guards in place	☐
☐ Check for cracks or unusual wear	☐
☐ Hydraulic hoses and cracked or leaking	☐
☐ Lubricated per Operator's Manual	☐
☐ Lubrication placard	☐
☐ Operator's Manual available	☐
☐ Lockout/tagout equipment available	☐
☐ Instructions on riders posted or available	☐
☐ Handholds & handrails	☐
☐ Floors, decks, ladders & steps	☐
☐ Loose bolts, nuts, fittings, etc.	☐
☐ Overhead cover, if equipped	☐

Cab	Exception
☐ Housekeeping	☐
☐ Gauges	☐
☐ Air cleaner indicator	☐
☐ Lights	☐
☐ Headlight	☐
☐ Work lights	☐
☐ Brake lights or reflective material	☐
☐ Strobe light	☐
☐ Doors, windows, latches, glass, etc.	☐
☐ Rearview mirror	☐
☐ Horn	☐
☐ Siren, if equipped	☐
☐ Safety glass & windshield wipers, if equipped	☐

CERTIFICATE OF SERVICE

I certify that on July 29, 2022, I electronically served Ms. Sheryl Harley (sheryl.harley@ntsb.gov), Investigator in Charge, National Transportation Safety Board, a complete and accurate copy of these proposed findings regarding the December 8, 2021, fatal injury of a National Salvage Employee working on the Norfolk Southern Railway Company - Buffalo Line near Reed, Pennsylvania. An electronic copy of same was also forwarded to the individuals listed below in this certificate of service, as required by 49 CFR § 845.27 (Proposed Findings).

Track / Mechanical/ Human Factors Group Party Members:

Troy Lloyd
National Transportation Safety Board
Track Group Chairman/Railroad Accident Investigator
[redacted]

Michael Hoepf
Human Performance/System Safety Group Chairperson
National Transportation Safety Board
[redacted]

Shane Shiffler
FRA Track Safety Specialist
[redacted]

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Respectfully submitted,

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