



Brotherhood of Maintenance of Way Employes Division of the International Brotherhood of Teamsters

Freddie N. Simpson
President

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March 5, 2015

Mr. James Southworth, Investigator in Charge
National Transportation Safety Board
490 L'Enfant Plaza East, S.W.
Washington, DC 20594

RE: Proposed Findings, Proposed Probable Cause, and Proposed Safety Recommendations in the matter of the April 30, 2014 derailment of CSX Train No. K08227 and the subsequent hazardous materials release of crude oil in Lynchburg, VA; NTSB Accident No. DCA-14-FR-008.

Dear Mr. Southworth:

The Brotherhood of Maintenance of Way Employes¹ Division of the International Brotherhood of Teamsters (BMWED) has been granted party status by the Board in the above-referenced investigation. BMWED respectfully submits these Proposed Findings, Proposed Probable Cause and Proposed Safety Recommendations to the Board for consideration.

Accident Synopsis

On April 30, 2014, at about 1:54 p.m. eastern daylight time, an eastbound CSX Transportation (CSX) unit train, identification number K08227, with two locomotives, one buffer car, and 104 tank cars of Bakken crude oil, derailed 17 tank cars at about milepost CAB 146.45 on the James River Subdivision in Lynchburg, VA. One of three tank cars that ended up partially submerged in the James River was breached, spilling crude oil that caught fire and also released into the river. There were no injuries resulting from the derailment and fire.

There was a local evacuation of about 6 city blocks in the area of the derailment effecting about 350 residents and about 20 businesses to the south of the derailment along the river

¹ Employes is not misspelled; the spelling was adopted from the "Old English" in 1901 and remains part of the BMWED trademark name.

front. The fire was extinguished at about 4:00 p.m. and the evacuation was lifted about 6 p.m. The train was travelling at 24 mph. The maximum speed through the derailment area is 25 mph.

Initial damage estimates provided by CSX are about \$1,000,000, which includes environmental remediation. The weather at the time of the incident was cloudy skies with light rain and a temperature of 53°F.

Proposed Findings

- Eastbound CSX Transportation unit train No. K08227, with two locomotive, one “MW stenciled” buffer car, and 104 tank cars of Bakken crude oil, derailed on April 30, 2014 at approximately 1.54 pm eastern daylight time on the James River Subdivision in Lynchburg, VA.
- The 35th through 51st cars derailed; all were loaded tank cars of Bakken crude oil.
- Train K08227 passed a CSX “supersite” detection location at Lowell, West Virginia at 12:30 a.m. April 30, 2014. The “supersite” inspects and records data for passing trains, including wheel bearing temperature readings, optical geometry detection (OGD), wheel impact load detection (WILD) and wheel profile detection (WPD). There were no exceptions taken by the “supersite” inspection for the mechanical condition of any cars on the train.
- The first car in the train, BNSF 808360, was designated as a buffer car. It was a loaded hi-cube covered hopper, designated (stenciled) as a Maintenance of Way (MW) car. It was built in April, 1978. The car was also stenciled on both sides with white paint “BUFFER SVC ONLY-Do Not Load.” There were no exceptions taken to the mechanical condition of the single buffer car.
- CSX inspects and maintains the single main track on this portion of the James River Subdivision to Federal Railroad Administration (FRA) Track Safety Standards (TSS) for Class 2 and 3 track in the vicinity of Lynchburg (milepost 146.5). While the accident location was in a curve restricted to 25 mph (Class 2 maximum speed), the authorized operating speed on either side of that curve restricted section of track was 35 mph (Class 3 speed range). There were no slow orders in effect for the Lynchburg area.

- CSX maintains the tracks on the James River Subdivision including the area within Lynchburg, VA utilizing the following available track forces: one Supervisor/Roadmaster, two track inspectors, one trackman, two foreman, two vehicle operators, one lubricator maintainer, one machine operators and two welders. ETRS data from 2013 showed on the Huntington Division (which includes the James River Subdivision) the ratio was 55% managers and 45% labor.
- The last visual inspection of the track was conducted on April 28, 2014, by a FRA qualified CSX track inspector. The track inspector's records indicated that no rail or track defects were present on April 28, 2014, in the area of the derailment. The main track in this area is visually inspected twice per week, with at least one day in between inspections, in compliance with the FRA Track Safety Standards. No exceptions were taken to the track inspection or inspection records from April 28, 2014. A review of track inspection records from January 2014 through April 2014 did not disclose any deviations from FRA inspection reporting requirements.
- FRA Track Safety Standards do not require railroads to perform any internal rail flaw inspections for Track Classes 1 and 2. FRA standards do not require internal rail flaw inspections over Class 3 track unless the track carries regularly-scheduled passenger trains or is designated a hazardous materials route². The section of track where the derailment occurred is designated as FRA Class 2 track.
- The FRA regulations governing internal rail flaw inspections are found in 49 CFR.237, Inspection of Rail. Paragraph §213.237 (a) states:

(a) In addition to the inspections required by §213.233, each track owner shall conduct internal rail inspections sufficient to maintain service failure rates per rail inspection *segment* in accordance with this paragraph (a) for a 12-month period, as determined by the track owner and calculated within 45 days of the end of the period. These rates shall not include service failures that occur in rail that has been replaced through rail relay since the

² As defined in §213.237(j)(1), *Hazardous materials route* means track over which a minimum of 10,000 car loads or intermodal portable tank car loads of hazardous materials as defined in 49 CFR 171.8 travel over a period of one calendar year; or track over which a minimum of 4,000 car loads or intermodal portable tank car loads of the hazardous materials specified in 49 CFR 172.820 travel, in a period of one calendar year.

time of the service failure. Rail used to repair a service failure defect is not considered relayed rail. The service failure rates shall not exceed—

(1) 0.1 service failure per year per mile of track for all Class 4 and 5 track;

(2) 0.09 service failure per year per mile of track for all Class 3, 4, and 5 track that carries regularly-scheduled passenger trains or is a hazardous materials route; and

(3) 0.08 service failure per year per mile of track for all Class 3, 4, and 5 track that carries regularly-scheduled passenger trains and is a hazardous materials route.³ (Emphasis added)

- CSX performed a continuous test for internal rail defects 15 times through the derailment area between January 2013 and April 29, 2014. Based upon the annual tonnage figures for the James River Subdivision, CSX was only required to test the Class 3 track in this area for internal rail defects twice per year based upon FRA standards. Thus, while not required to test Class 2 track, CSX was testing the rail in this area for internal defects at an annual rate exceeding the FRA minimum for Class 3 track by a factor of approximately 4.5.
- An ultrasonic internal rail flaw inspection was last conducted in the area of the derailment on April 29, 2014.
- The fractured rail recovered from the point of derailment (POD) was 132 RE Nippon rail, manufactured in 1990. The ties, anchors, fasteners, plates, and ballast in the area of the POD were in compliance with the applicable FRA standards for Class 2 and 3 track.

³ As defined in §213.237(j)(1), *Hazardous materials route* means track over which a minimum of 10,000 car loads or intermodal portable tank car loads of hazardous materials as defined in 49 CFR 171.8 travel over a period of one calendar year; or track over which a minimum of 4,000 car loads or intermodal portable tank car loads of the hazardous materials specified in 49 CFR 172.820 travel, in a period of one calendar year.³

- Approximately 3' west of the POD was a rail end held in place with a set of joint bars. The joint bars were a remedial action taken by CSX to repair a rail service failure found in January 2014.
- The test data from the April 29, 2014, ultrasonic rail inspection noted a 20% transverse detail fracture in the high rail of the accident curve (MP 146.45). The 20% TDD was in a field weld 8' 10" east of the barred service failure.
- Post-accident, a rail break approximately 3' east of the joint bar location exhibited slight rail end batter on the trailing fracture edge and slight rail end batter on the receiving rail fracture edge. This break was determined to be the POD and the location of a <5% reverse transverse detailed defect (TDD) detected but not coded (i.e., not recorded) as such by the inspection car on April 29, 2014.
- There are no specific remedial actions required under FRA regulations for a <5% reverse transverse detailed defect (TDD). The <5% reverse transverse detailed defect (TDD) showed up on the Sperry "screenshot;" however, it was not specifically coded as a separate defect by the detector car.
- Current rail flaw detection technology is insufficient to identify ALL internal rail flaws, especially TDDs <5%. Therefore, where TDDs of detectable size are discovered in a rail, there remains the possibility that other TDDs of non-detectable size are also located in that same rail.
- The material truck operator (MTO) determined on April 29, 2014, that a 40' rail plug he had on his truck was long enough to remove two field welds (one with a 20% TDD), the barred rail service failure, and the un-coded (not recorded) <5% reverse transverse detailed defect. The MTO placed the replacement rail in the area of the 20% TDD (field weld #1), with the intent to also remove the barred service rail failure, a second field weld, and the un-coded <5% TDD. The replacement rail was scheduled for installation on May 1, 2014.
- Current FRA regulations do not require a slow order/speed restriction for trains operating over Class 2 track (maximum authorized speed 25 MPH) for a 20% transverse detail fracture or a <5% Reverse TDD. FRA remedial action "C" (49 CFR, 213.113(a)(2)–Remedial Action Table, effective date 3-25-14) requires joint bars to be applied within 10 days of discovery of a 20% TDD with a 30 MPH speed restriction implemented until joint bars are applied. There is no FRA remedial action required for a <5% reverse TDD.

- Current FRA regulations are insufficient to provide *operational incentives* to accelerate the application of remedial action in a timelier manner.
- Post-accident, CSX voluntarily modified its instructions for remedial actions for defective rails. The modification, issued July 1, 2014, instructs that a detailed fracture must have a 10 MPH speed restriction placed until rail joint bars are applied to the defect location.
- Current FRA regulations are devoid of any requirements concerning baseline rail wear limits and remedial actions related thereto.

Proposed Probable Cause

BMWED proposes that the probable cause of the derailment of CSX Train No. K08227 was a rail service failure at the un-coded (i.e., detected but not specifically recorded) <5% reverse TDD located in the high side of the curve at MP 146.45.

BMWED proposes that rail wear and rolling contact fatigue were probable contributing factors resulting in the rail service failure.

Proposed Recommendations

BMWED proposes the following recommendations to be implemented immediately to prevent future accidents:

To All Railroads

- Amend contracts with internal rail flaw detection contractors to require reporting of internal rail defects discovered during the course of an internal rail flaw inspection (within the limits of available technology); regardless of defect size (i.e., <5% TDD).
- Except for defects requiring Remedial A, A2 and B (which shall continue to apply according their terms), assign a person designated under §213.7 to make a visual inspection of each transverse fissure or transverse detailed fracture discovered to determine if safe for operations prior to any traffic. If deemed safe for operations,

apply up to a maximum 10 MPH speed restriction for discovered transverse fissures and transverse detailed fractures currently requiring Remedial Actions “C” and “D” on all classes of track until joint bars are applied or rail replaced. If remedial action or rail replacement is not completed within 24 hours of defect discovery, conduct an additional visual inspection of the defect each 24 hour period until remedial action or rail replacement is completed.

- Assure adequate track forces are available, trained and equipped to apply remedial actions and maintain the infrastructure to a state of good repair.
- Review and amend rail wear limits as necessary to provide for maintenance planning and an increased level of safety. Develop specific remedial actions for rail exceeding wear limits.
- Institute/amend rail grinding program to mitigate the development of rail surface conditions (e.g., checking, spalling, shelling, corrugation) that are precursors to the development of reverse TDDs.

To FRA

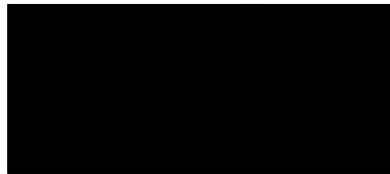
- Required railroads to report internal rail defects discovered during the course of an internal rail flaw inspection (within the limits of available technology); regardless of defect size (i.e., <5% TDD).
- Promulgate remedial action requirements for all discovered reverse TDDs regardless of size.
- Modify the Remedial Action Table (§ 213.133) to provide *operational incentives* for the implementation of more prompt and timely remedial actions as follows:
 - Modify Remedial Actions C and D to require the assignment of a person designated under §213.7 to make a visual inspection of each transverse fissure or transverse detailed fracture discovered to determine if safe for operations prior to any traffic. If deemed safe for operations, apply up to a maximum 10 MPH speed restriction for discovered transverse fissures and transverse detailed fractures on all classes of track until joint bars are applied or rail replaced. If remedial action or rail replacement is not completed within 24 hours of defect discovery, conduct an additional visual inspection of the defect

each 24 hour period until remedial action or rail replacement is completed. Upon application of joint bars, limit speed to 50 MPH or the maximum operating speed allowed under §213.9 for the class of track concerned, whichever is lower.

- Modify Remedial Action B to limit the maximum operating speed to 10 MPH until rail is repaired or replaced.
- Extend the requirements of §213.237, Inspection of Rail, to all Class 2 and 3 main and siding track carrying crude oil or hazardous material cars at the frequency mandated for Classes 4 and 5. In the alternative, reduce maximum authorized speed for trains carrying crude oil or hazardous material on Class 2 and 3 main and siding track by one track class.
- Require twice weekly track inspections, with at least one calendar day interval between inspections, for all main track and sidings designated as “excepted track, or Class 1, 2, or 3 track” regardless of MGTs where crude oil or other placarded hazardous materials are transported.
- Revise §213.237, Inspection of Rail, so that the service failure rates in §213.237 (a)(1-3) are “sufficient to maintain service failure rates per rail inspection mile” rather than the current “per rail inspection segment.” This would provide early identification of problematic rail sections that may otherwise be “averaged out” and not identified under the current “per segment” provision.
- Review existing carrier standards for rail wear and establish baseline rail wear limits and remedial actions related thereto for various rail sections and track classes.
- Amend 49 CFR §174.85 to require railroads to provide a minimum of 5 non-placarded buffer cars between the locomotive and placarded unit train consists carrying crude oil or other hazardous materials.
- Issue a Safety Advisory detailing the prohibition (§215.3(c)) against using MW-stenciled cars (§215.305) in revenue service.

These comments constitute BMWED's proposed findings, proposed probable cause, and proposed recommendations pursuant to 49 CFR §831.14(a). BMWED appreciates the opportunity to participate in this investigation and provide this submission to the Board for its consideration.

Respectfully,



Director of Safety

cc: Hearing Parties