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WMSC Commissioner Brief: W-0038 – Derailment at Franconia-Springfield August 30, 2019

Prepared for Washington Metrorail Safety Commission meeting on August 4, 2020

Safety event summary:

A contractor flat cart derailed at the interlocking near the Franconia-Springfield station on August 30, 2019 at approximately 4:36 p.m. At the time, the area was shut down as part of a summer-long work zone. Metrorail's contractor was in the process of demobilizing the work site to allow service to be restored.

As the flat cart was being pushed through the interlocking, the contractor described the axle as chattering then hopping off the track. The contractor re-railed the flat cart on its own at 5:27 p.m.

There were no injuries reported.

Weather conditions were clear and were excluded as a contributing factor.

Probable Cause:

While the investigation was limited by the vehicle's rerailing and removal from Metrorail property, the load distribution on a single-axle rigid frame railcar with no suspension that is normally not permitted on Metrorail property likely contributed to the derailment. Track geometry may also have played a role given a rotted tie near the point of derailment, but follow up track inspections did not identify specific track geometry issues.

Corrective Actions:

As corrective actions, WMATA committed to inspecting all contractor equipment, including equipment used in areas closed to customers for long-term shutdowns.

WMSC staff observations:

This type of single-axle flat car is not allowed in the Metrorail system, but Metrorail gave permission for use within the 2019 summer shutdown zone.

Metrorail claimed that the contractor doing work in the shutdown area had "sole jurisdiction" over the event, however this is not the case. WMATA is responsible for oversight of its contractors, and the WMSC is responsible for oversight of the entirety of the Metrorail system, including areas that are under construction.

The contractor re-railed the vehicle less than an hour after the derailment, and Metrorail's safety department did not perform a fully independent investigation of the incident as the contractor removed the vehicle from Metrorail property.

Staff recommendation: Adopt final report.

FINAL REPORT OF INVESTIGATION A&I E19454

SMS 20190830#82612

Date of Event:	08/30/2019
Type of Event:	Derailment
Incident Time:	16:36 hrs.
Location:	Franconia-Springfield – J Line, Chain Marker (CM) J3-884+00
Time and How received by SAFE:	Email 17:13 hrs.
Safety Officer Response:	Yes
Time of Safety Officer Arrival:	N/A
Time of Safety Officer Departure:	N/A
Rail Vehicle:	Flat Cart (Unit #801)
Injuries:	None
Damage:	None
Emergency Responders:	SAFE, ATC

Executive Summary

On Friday, August 30, 2019, at 17:13 hrs., the Rail Operation Control Center (ROCC) notified SAFE that at approximately 16:36 hrs., Mobile Command Center (MCC) reported Contractor Flat Cart (Unit #801) derailed in the proximity of Chain Marker (CM) J3-884+00 within the Authorized Construction Site (ACS) at Franconia-Springfield.

Automatic Train Control (ATC) personnel responded and performed an inspection of Switch 11A and 9. ATC reported the switches were aligned correctly for the planned move from Track #3 (Pocket Track) to Track #1. No damage was found. No injuries were reported as a result of this event. The incident vehicle was re-railed and remained within the ACS area for further inspection performed by the Contractor; however, no damage or negative findings were reported on the vehicle.

Notification

Title	Time	Comment:
Phone	18:07 hrs.	WMSC
CMC	18:34 hrs.	Email Notification
WMSC	18:34 hrs.	Email Notification

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

Incident Site

Incident area was located at Franconia-Springfield interlocking within an Authorized Construction Site. A demobilization of worksite was underway at CM J3 844+00.

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Investigation

Contractor Report

A Contractor Equipment Operator (E/O) was performing a planned move with Contractor Unit #801 (pulling) from Track #2 to the pocket track and then (pushing) returning to Track #1 utilizing J03/11A and J03/9 switches to clear Track #2. After the Unit cleared Switch 11A and was being pushed towards the converging track after the frog, the Unit's rear Axle (front axle during push operation) reportedly chattered and hopped off the track derailing at CM J3 884+00, towards the field side.

The Point of Derailment (POD) verified through rail markings was identified at CM J3 884+00. The POD was approximately one (1) foot from the location that the vehicle's wheels came to a complete rest. Refer to photo 4.

A Washington Metropolitan Area Transit Authority (WMATA) DECO / IRPG inspector within the ACS area informed SAFE that Unit #801 had been re-railed by the Contractor at 17:27 hrs., and stored at CM J3 884+00. The inspector reported that the Switches were in good condition, and all track components were present and appeared secured, except for the tie shown in photos 1, 2, and 4, which showed significant signs of deterioration.

SAFE did not perform interviews for this event; the investigation was performed by the contracting company.

Human Factors

Years of Service

The Contractor employee was a 15-year operator [in craft] with two (2) weeks of service with the contracting company.

Fatigue / Post Incident Toxicology Testing

The Contractor did not provide a Fatigue analysis or Drug and Alcohol within their report.

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

ATC

ATC inspected the track component, and no damage was reported.

Weather

At the time of the incident, the temperature was 77°F and Clear. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) – Location: Alexandria, VA.)

Findings

- Unit #801 is a single axle flat car
- The location of the incident was a curved track
- Post-incident static track inspection revealed the gauge measured at 56 1/2" and determined within specifications
- No evidence of lateral rail movement
- No surface or alignment deviations
- No loose, missing, broken clips/spikes
- Equipment was removed from the ACS site and not available for inspection

Note: This event occurred at the end of summer the shutdown and equipment was being removed from the property at the time of the incident; therefore, SAFE investigation staff did not have the opportunity to perform post-incident investigative processes.

Immediate Mitigation

- Contractor removed Unit #801 from service for external post-incident inspection
- ATC inspected the track component, and no damage was reported.
- The affected Unit was removed from WMATA's property

Conclusion

Based on POD, distance traveled, Point of Rest (POR), and operating speed was not a contributing factor. The most probable casual factors are track geometry, load distribution or load shifting, and a single axle rigid frame rail-car with no suspension.

Based on the facts identified during this investigation, SAFE has no further information to disclose regarding this investigation and recommends E19454 for closure.

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

Note: Due to the design/requirements of the carts, they were lifted into the area and restricted to the ACS only.

Corrective Action

1. WMATA will perform inspections on all contractor equipment, including equipment used within an ACS area.
2. Capital Planning and Delivery shall update ACS Standard Operating Procedure (SOP) to reflect processes of equipment inspection

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

Attachments

Kiewit

INCIDENT ALERT

INCIDENT TYPE: NEAR MISS

Date and Time: 3:30PM 8/30/19 **District Name:** Eastern District

Internal/External: Internal **Project Name: WMATA 6 Yellow/Blue Line**

Description (What happened?)

While moving the rail equipment from Track 2 to Track 1, the rail cart derailed. The real cart derailed due to a rotted tie. The track was 3/8" out from a standard track width. As can be seen from the photo, the rail cart derailed at the location of the bad tie as can be seen from the white paint on the rail where the cart derailed.

Causal Factors (Why did the incident happen?)

1. **Tools, Equipment & Vehicles**
   - Defective equipment

Details: At the location of the derailment there was a bad tie as can be seen in the picture below. The tie was rotted at the location of the plates.

Corrective Measures (How can the incident be prevented in the future?)

- Walk track to inspect for rotted ties.
- Place spotter at potentially identified locations. In those areas go at a very slow pace.

Reconstruction Photos:

2019

Attachment 1 – Contractor Incident Report Pg. 1 of 2

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

Kiewit

INCIDENT ALERT

Is the involved party Internal (to Kiewit) or External? Internal **If External Co. Name:**
Date Event Occurred: 8/30/2019 **Date Event Reported:** 8/30/2019 Time Event Occurred: (3:30PM) Time Event Reported: (3:30PM)
Physical Location of the Incident: J3 884+00 **Incident Occur On-Site or Off-Site? : Yes**
Name of Injured/involved: [redacted] **Employee Perner ID (Only):** Contact #: N/A **Time Present on the Job:** 2 weeks + **Length of Service:** 2 Weeks + **Total Craft Experience:** 15+ **Shift:** Day **Craft Type:** Operator
Superintendent Name: [redacted] **Was the Superintendent Present at time of incident: Yes** **Foreman Name:** [redacted] **Was the Foreman Present at time of incident:Yes** **Is the involved person a Foreman?** NO
Sponsor Name: [redacted] **Project Manager Name:** [redacted] **Area Manager Name:** [redacted] **Const. Manager Name:** [redacted] **Station Manager** [redacted]

2019

Attachment 1 – Contractor Incident Report Pg. 2 of 2

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

Photos

Photo 1 – Rear axle derailed on the field side

Drafted By:	SAFE 704 – 01/14/2020
Reviewed By:	SAFE 701 – 01/15/2020
Approved By:	SAFE 70 – 01/17/2020

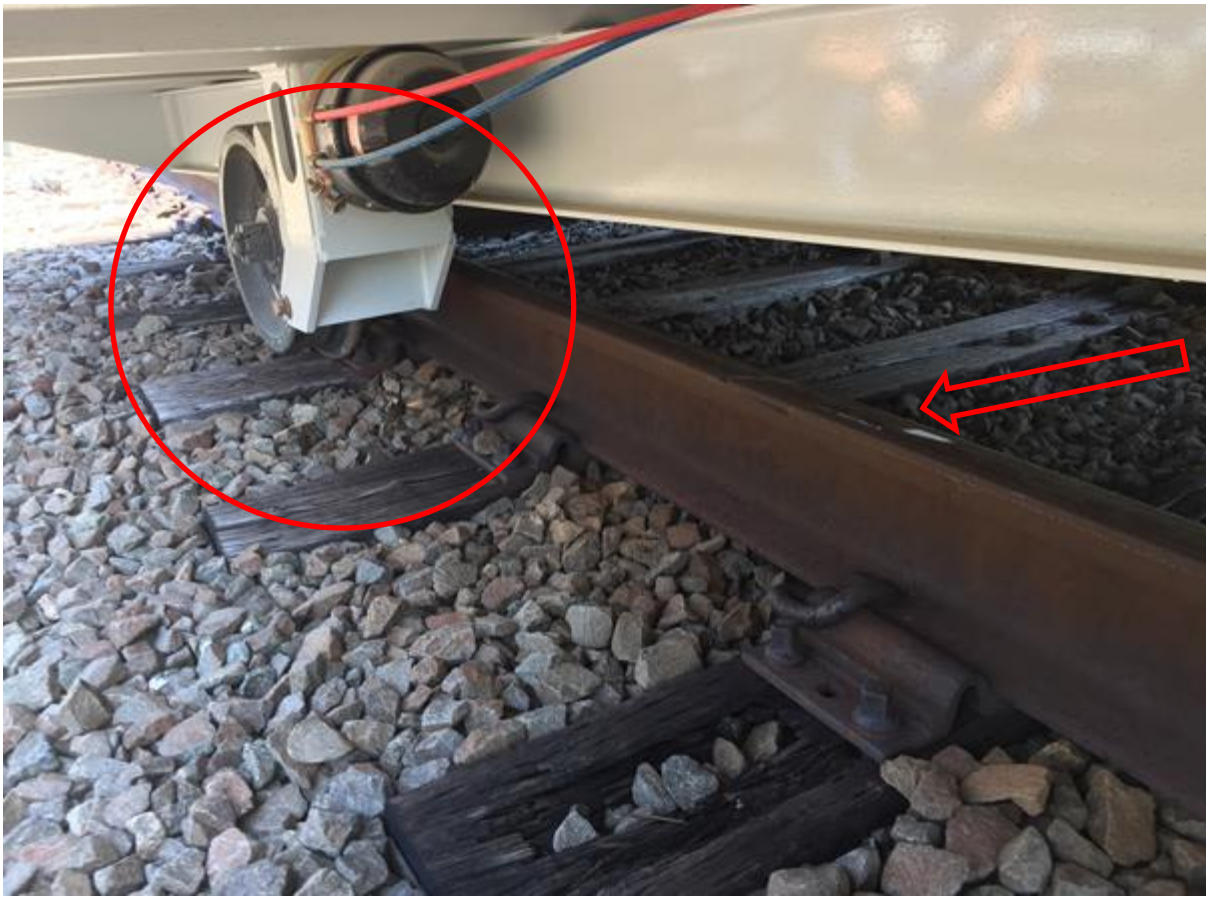

Photo 2 – Rear axle derailed on the field side during pushing (reverse) operation with POD markings

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020

Photo 3 – CM location, Unit #801 Derailment, the weight distribution of equipment on the flat car

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020
Rev.01 Approved by: SAFE 701 – 07/20/2020

Photo 4 – POD markings

Drafted By: SAFE 704 – 01/14/2020
Reviewed By: SAFE 701 – 01/15/2020
Approved By: SAFE 70 – 01/17/2020