



WMSC Commissioner Brief: W-0239 – Evacuation for Life Safety Reasons at Union Station – March 21, 2023

Prepared for Washington Metrorail Safety Commission meeting on August 8, 2023

Safety event summary:

On March 21, 2023, a train was evacuated for life safety reasons at Union Station due to a fire intentionally set by a rider aboard the train. The investigation identified deficiencies related to Metrorail's response to this event including the Rail Operations Control Center controller initially instructing the operator to continue in service with an active fire reported aboard the train, not immediately offloading customers from that train, not notifying the ROCC fire liaison, and not requesting Fire Department assistance.

At 3:24 p.m., the Train Operator of Train 107, traveling on Track 2 toward Shady Grove Station informed the Radio Rail Traffic Controller that a rider reported that another rider had ignited newspaper aboard the train approaching Union Station. Review of closed-circuit television shows that the fire began at approximately 3:21 p.m. when a customer placed newspaper under their seat and set it on fire while the train was traveling toward Union Station.

Initially the Rail Traffic Controller incorrectly instructed the Train Operator to make public address announcement for Metro Transit Police Department (MTPD) personnel to board the train at each station stop, implying that the operator should continue normal operations despite the report of a fire aboard the consist.

While the train was still stopped on the platform at Union Station, the Station Manager notified the Rail Traffic Controller via radio that Metropolitan Police Department (D.C. Police) Officers were at the station and were responding to the train.

At 3:26 p.m., the Rail Traffic Controller notified MTPD of the report and that Metropolitan Police Department personnel were on the scene investigating, and then notified the Rail Operations Control Center Operations Manager of the situation.

At 3:27 p.m., the Station Manager reported the fire had been extinguished. Review of closed-circuit television footage showed that at approximately 3:26 p.m. two riders used their feet to extinguish the fire. The Station Manager reported that the person believed to be responsible for setting the fire had been apprehended.

The Rail Traffic Controller instructed the Train Operator to isolate the affected rail car, car 7221 (this means disabling systems on this car such as door operations, while keeping the other cars of the train operating as normal). The Controller then changed those instructions and directed the Train Operator to offload all riders from the train and proceed without passengers. The Rail Traffic Controller requested a Car Maintenance Road Mechanic board the train at Gallery Place-Chinatown Station to check car 7221 for smoke and other damage. Later, the Road Mechanic was instructed to report to Union Station to check the car prior to the train moving. The Road Mechanic responded to Union Station and examined the train. The train was kept out of service and taken to a railyard for inspection and cleaning.

At 3:31 p.m., seven minutes after the event was reported, the Buttons Rail Traffic Controller notified the Operations Manager that fire department assistance, which Metrorail had not yet requested, was not needed.

Probable Cause:



750 First St. NE • Ste. 900 • Washington, D.C. 20002

Office: 202-384-1520 • Website: www.wmsc.gov

The probable cause of this evacuation for life safety event was a rider intentionally igniting a newspaper to cause a fire. The probable cause of the ROCC response deficiencies is a lack of supervisory oversight to ensure timely response and compliance with emergency procedures.

Corrective Actions:

Examples of other related open CAPs

- C-0052 addresses the finding that there is no consistent, clear, concise, immediate and reliable Metrorail communication process for safety-critical information between Metrorail personnel and fire liaison. (Expected completion date August 2024)

WMSM staff observations:

In response to the WMSM finding that some Metrorail procedures lack the required urgency to address life-safety issues, Metrorail developed and implemented a corrective action plan (C-0053) that included Metrorail rewriting smoke, fire and related alarm procedures including specific responsibilities for calling and dispatching the fire department and immediate communication with the Fire Liaison. It is imperative that Metrorail continue to adhere to the changes and processes developed to address this issue to provide for the safety of the Metrorail system.



Washington Metropolitan Area Transit Authority
Department of Safety (SAFE)
Office of Safety Investigations (OSI)

FINAL REPORT OF INVESTIGATION A&I E23193

Date of Event:	March 21, 2023
Type of Event:	Evacuation for Life Safety Reasons
Incident Time:	15:25 hours
Location:	Union Station, Track 2
Time and How received by SAFE:	16:06 hours – Mission Assurance Coordinator (MAC)
WMSC Notification Time:	15:35 hours
Responding Safety Officers:	None
Rail Vehicle:	L7220- 7221 x7345-44x7091-90x7284-85T
Injuries:	None
Damage:	None
Emergency Responders:	Metro Transit Police Department (MTPD), Metropolitan Police Department (MPD)
SMS I/A Incident Number:	20230321#107086MX

Union Station – Evacuation for Life Safety Reasons

March 21, 2023

Table of Contents

Abbreviations and Acronyms-----	3
Executive Summary -----	4
Incident Site -----	4
Field Sketch/Schematics -----	4
Purpose and Scope -----	5
Investigative Methods-----	5
Investigation -----	5
Chronological Event Timeline-----	10
Interview Findings-----	11
Advanced Information Management System -----	12
Weather -----	12
Human Factors -----	12
Evidence of Fatigue -----	12
Post-Incident Toxicology Testing -----	12
Findings -----	13
Immediate Mitigation to Prevent Recurrence -----	13
Probable Cause Statement-----	13
Recommended Corrective Actions -----	13
Appendices -----	14
Appendix A – Interview Summary -----	14
Appendix B – RTRA Supervisor Report (Redacted) -----	15
Appendix C – Scene Photographs-----	16
Appendix D – Why-Tree Analysis-----	18

Abbreviations and Acronyms

CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
DCFEMS	District of Columbia Fire and Emergency Medical Services
MAC	Mission Assurance Coordinator
MSRPH	Metrorail Safety Rules and Procedures Handbook
MPD	Metropolitan Police Department
MTPD	Metro Transit Police Department
NOAA	National Oceanic and Atmospheric Administration
PA	Public Address
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
ROCC	Rail Operations Control Center
SAFE	Department of Safety
SMS	Safety Measurement System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Purpose and Scope

The purpose of this accident investigation and candid self-evaluation is to collect and analyze available facts, determine the probable cause(s) of the incident, identify contributing factors, and make recommendations to prevent a recurrence.

Investigative Methods

The investigative methodologies included the following:

- Site Assessment
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
 - Metrorail Safety Rules and Procedures Handbook (MSRPH)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Rail Operations Control Center (ROCC) Incident Report
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
 - ARS (Audio Recording System) playback, including OPS 1 Radio
 - Rail Car Closed-Circuit Television (CCTV)

Investigation

On Tuesday, March 21, 2023, at 15:25 hours, the Train Operator of Train ID 107 [L7220-7221x7345-44x7091-90x7284-85T] notified the Radio RTC that a woman aboard the train ignited newspaper on the train at Union Station, Track 2. The Radio RTC instructed the Train Operator to make PA announcements at the station requesting MTPD to board the train. The Station Manager working at Union Station reported that a Police Officer was inside Union Station to assist.

A review of onboard camera systems showed a customer traveling several stations showing signs of erratic behavior near doors 11 and 12 on the rear of railcar 7221. A set of newspapers were positioned next to the customer on the floor of the railcar.

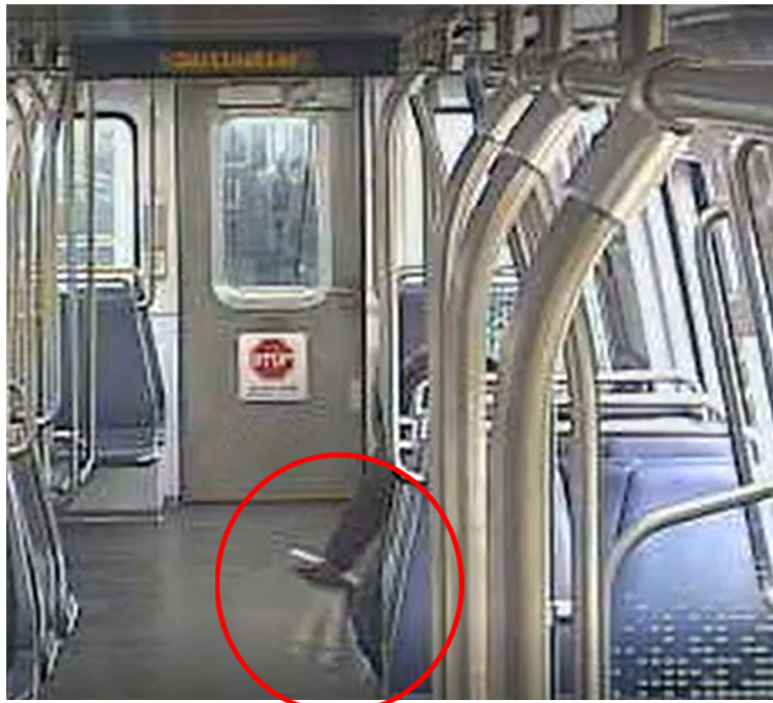


Figure 1 - Customer grabbing newspaper on the railcar floor

The customer then began gathering the set of newspapers while remaining in a seated position. The first signs of fire from the reflection on the railcar floor began at approximately 15:21 hours. As customers boarded the train at the next station, they observed the individual but did not take any immediate action. Approximately six customers were on board the rear of car 7221.



Figure 2 - Several newspapers moved under the customer's seat.



Figure 3 - The fire grows under the customer's seat - at approximately 15:22 hours.

At approximately 15:23 hours, a customer appears to notice the smoke condition. The customer that ignited the fire remained seated with legs crossed. The customer did not have shoes or socks on their feet.



Figure 4 - Customer with fire under the seat and legs crossed.

Smoke began to fill the rear of car 7221, and customers began leaving their seats. As the train arrived at Union Station, the customers exited the train.



Figure 5 - Doors opened, and passengers exited the train as the fire continued at approximately 15:24 hours.

Customers who observed the fire condition boarded the train and extinguished it with their feet.



Figure 6 - Customers boarded car 7221 and extinguished the fire with their feet at approximately 15:26 hours.

MPD arrived on the scene at approximately 15:27 hours and removed the customer from the train. MPD and the Station Manager boarded the train with a fire extinguisher; however, the fire condition was no longer present.



Figure 7 - Customer disembarking the train without incident with MTPD at approximately 15:27 hours.



Figure 8 - MPD and Station Manager (with fire extinguisher) aboard railcar 7221.

Chronological Event Timeline

A review of ARS playback, i.e., phone and radio communications, revealed the following timeline:

Time	Description
15:24:42 hours	<p><u>Train Operator</u>: Train ID 107 Reported they were informed that in the third railcar 7345, a woman set fire to newspapers on the train. MTPD was requested.</p> <p><u>Radio RTC</u>: Acknowledged and advised the Train Operator to make PA announcements for MTPD to board the train at each station.</p> <p><u>Station Manager</u>: Reported Police Officers are present at Union Station Terminal and someone contacted the Police to have them respond to the train. [Ops 1]</p>
15:26:06 hours	<p><u>Button RTC</u>: Informed MTPD dispatch that a person ignited something on the train and that an officer was on the train assisting. [Phone]</p>
15:26:20 hours	<p><u>Station Manager</u>: Informed ROIC that MPD was in Union Station and to hold the train on the platform for MPD to respond to the train to investigate. [Phone]</p>
15:26:22 hours	<p><u>Buttons RTC</u>: Informed Assistant Operations Manager (AOM) of the customer attempting to ignite a fire to newspapers on the train and that police were on the scene at Union Station. [Phone]</p>
15:26:57 hours	<p><u>Train Operator</u>: Requested permission to key the train down and assist the Station Manager. They verified that the affected railcar was 7221 (the second car from the lead car 7220).</p> <p><u>Radio RTC</u>: Instructed the Train Operator to remain in the lead car and acknowledged the correct affected railcar to 7221. [Ops 1]</p>
15:27:41 hours	<p><u>Station Manager</u>: Advised that the fire was extinguished in railcar 7221.</p> <p><u>Radio RTC</u>: Requested the damage status of 7221, the presence of Police, and the suspect's whereabouts.</p> <p><u>Station Manager</u>: Advised that MTPD was on the train [Ops 1]</p>
15:28:13 hours	<p><u>Station Manager</u>: Requested railcar 7221 to be isolated due to smoke on the railcar.</p> <p><u>Radio RTC</u>: Instructed the Train Operator to isolate railcar 7221.</p> <p><u>Train Operator</u>: Acknowledged and confirmed with repeat back.</p> <p><u>Radio RTC</u>: Changed instruction and requested Train ID 107 Operator to offload the train on the platform at Union Station.</p> <p><u>Station Manager & Train Operator</u>: Acknowledged and confirmed with a repeat back [Ops 1]</p>
15:30:31 hours	<p><u>Radio RTC</u>: Requested Road Mechanic to check railcar 7221 for smoke and damage when Train ID 107 arrived at Gallery Place Chinatown Station.</p> <p><u>Train Operator</u>: Reported MTPD was on the lead railcar 7220 with the suspect, and they were giving the police resistance.</p> <p><u>Radio RTC</u>: Requested Train ID 107 to confirm when the train was clear of customers.</p> <p><u>Train Operator</u>: Acknowledged and confirmed with repeat back. [Ops 1]</p>
15:31:20 hours	<p><u>Buttons RTC</u>: Confirmed to Rail 1 that Fire Department services were not needed due to the fire being extinguished. [Phone]</p>
15:32:45 hours	<p><u>Road Mechanic</u>: Requested confirmation to remain at Gallery Place and follow previous instructions.</p> <p><u>Radio RTC</u>: Instructed Road Mechanic to respond to Union Station.</p> <p><u>Road Mechanic</u>: Acknowledged and confirmed with repeat back. [Ops 1]</p>

Time	Description
15:32:37 hours	<u>Rail 2:</u> Informed Buttons RTC to move Train ID 107 when the MAC released the train and was advised to single track. [Phone]
15:33:15 hours	<u>Train Operator:</u> Confirmed Train 107 was clear of customers and requested permission to isolate railcar 7221 due to smoke. <u>Radio RTC:</u> Confirmed the instruction to isolate the affected railcar and instruct the customers on the platform that trains will single-track by way of Track 1. <u>Train Operator:</u> Acknowledged and confirmed with repeat back. [Ops 1]
15:33:17 hours	<u>MAC:</u> Informed WMSC that a customer ignited the fire to newspapers on the train and was in the custody of MPD. Customers did self-evacuate onto the platform from the train that was properly berthed at the 8-car marker on the platform at Union Station. MPD confirmed that the fire was extinguished, and the Fire Department was not dispatched because the fire was extinguished. <u>WMSC:</u> Acknowledged and released the scene. [Phone]
15:33:55 hours	<u>MTPD Dispatcher:</u> Requested mental health medical assistance for the suspect in the MPD custody on the platform at Union Station. <u>911 Dispatch:</u> Acknowledged. [Phone]
15:34:45 hours	<u>Rail supervisor:</u> Reported to the Buttons RTC that they were aboard Train ID 108 and headed to Union Station to assist with the incident. [Ops 1]
15:36:59 hours	<u>Train Operator:</u> Confirmed railcar 7221 was isolated. They reported that a male MTPD officer was standing by with the female suspect in the lead car and could not remove the suspect until a female MTPD officer arrived.
15:38:38 hours	<u>Rail Supervisor:</u> Informed Buttons RTC that the suspect remained on the train in MPD custody, and they could not remove her from the train until a female officer arrived. [Phone]
15:43:44 hours	<u>Rail Supervisor:</u> Confirmed the suspect was clear of the train and the train was ready to be moved. [Ops 1]

Note: Times above may vary from other systems' timelines based on clock settings.

Interview Findings

As part of the investigation launched into the event, SAFE interviewed one person. The interview identified the following key findings associated with this event. The findings detailed below include reported information from involved personnel and may conflict with other data sources contained in the report.

Train Operator

- The Train Operator stated that upon their arrival at Union Station, they were notified of a customer igniting trash on the second railcar 7221.
- The Train Operator stated that ROCC initially instructed them to make a PA announcement for MTPD and continue to the next station.
- The Train Operator stated they saw flames emerging from the second railcar.
- The Train Operator stated they were instructed to offload the train.
- The Train Operator stated that the responding male MPD officer's protocol restricted him from physically removing the female suspect from the train.
- The Train Operator said they offered the suspect water, which got them off the train.
- The Train Operator stated that railcar 7221 was not damaged.

Advanced Information Management System



Figure 9 - AIMS Report Train 107 arrived at Union Station at 15:24 hours.

Weather

On March 21, 2023, at the time of the incident, NOAA recorded the temperature as 63° F, with mostly cloudy skies, winds of 10 mph, and 20% humidity. The weather did not contribute to this incident (Weather source: NOAA) – Location: [Washington, D.C].

Human Factors

Evidence of Fatigue

The biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied for this event.

Fatigue Risk

The biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied for this event.

Post-Incident Toxicology Testing

Post-Incident Toxicology Testing was not conducted for this event.

Findings

- The source of the fire resulted from a customer that ignited a newspaper aboard Train ID 107 Car 7221.
- Two customers extinguished the fire, and District of Columbia Fire and Emergency Medical Services (DCFEMS) was not required.
- MPD responded to the train and identified the source of the fire with Station Manager personnel.
- Customers self-evacuated onto the Union Station platform while Train ID 107 was properly berthed at the 8-car marker after the Train Operator performed a left-side door operation.
- MPD requested mental health services for the customer.

Immediate Mitigation to Prevent Recurrence

- Railcar 7221 was offloaded and isolated from customers.
- The Train was removed from service and taken to the railyard to be inspected for damage.

Probable Cause Statement

The probable cause of this event was a customer intentionally igniting a fuel source resulting in fire and smoke condition aboard car 7221. There were no Contributing Factors identified related to vehicles, personnel or infrastructure of the Washington Metropolitan Area Transit Authority (WMATA).

Recommended Corrective Actions

There are no Recommended Corrective Actions associated with this event.

Appendices

Appendix A – Interview Summary

The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.

Train Operator

The Train Operator stated that they were servicing the platform at Union Station when a passenger approached the operator's cab window to inform them that someone was igniting trash on the second railcar. The ROCC was notified and told to make announcements for MTPD to board the train while continuing to the next station. They placed their head out of the operator's cab window and saw flames coming from the second railcar.

The Train Operator stated they requested permission to investigate the flames emerging from the second railcar. While walking towards the second railcar, Station Managers were able to remove and extinguish the trash from the railcar. A few moments later, an MPD Officer arrived on the scene and attempted to remove the suspect who ignited the fire from the railcar. They were instructed to offload the train and isolate railcar 7221. The train was cleared of customers except for the female suspect. The male MPD Officer advised that they could not remove due to gender protocol. The MPD officer was awaiting a female MPD officer's arrival at the scene.

The Train Operator stated "that the RTRA Supervisor arrived on the scene and trains began to single track through Union Station. They offered the suspect water, and upon accepting the water, the suspect exited the railcar onto the platform at Union Station." ROCC was updated and instructed to close the 7221 railcar doors and continue in non-revenue service to Shady Grove rail yard.

The Train Operator stated, "They saw no damage to the railcar."

Appendix B – RTRA Supervisor Report (Redacted)

RTRA SUPERVISOR REPORT				
Date 3/21/2023	Incident Time 3:57pm	Incident Location (Station Mezzanine #) Union Station	Track/Mezzanine # Track 2 Red Line	
Equipment Number (Train ID & Car Numbers; Escalator/Elevator #) Train 107 Car 7221				
Incident Description Fire on Train				
WMATA Personnel Involved	Employee #	Rule Violation?	Home Division	Post Incident
		None	Brentwood	No
		None	Glenmont	No
Name N/A	Address N/A			Injury? No
Name	Address			Injury?
Name	Address			Injury?
Arrival Time	Unit Number	Person In Charge		Remarks
3:57pm				None
On Scene		D.C. Police Officer		None
Chronological Account of Incident				
<p>On 3/21/2023 Operator reported a fire on train 107, car 7221, a customer had set news paper on fire. Operator reported the discrepancy to ROCC. ROCC instructed train 107 to properly birth on the platform to check and advise. Operator advise ROCC that the report was true and instructed him to off load the train. D.C Police Officer along with station managers and responded to car 7221 and extinguished the news paper fire. ROCC instructed trains to single track, I instructed the station managers to accommodate the customers to the track 1 side of Union Station. Shortly after we were able to extract the customer off of the train and continue normal service. No major damage to the train.</p>				
(Note time for each entry; Include statement of Employee or Witness at conclusion)				
Your Arrival Time: 3:57pm				
Supervisor Submitting Report	(Payroll #)	Date	Report Reviewed By	Date
		3-21-23		3/24/2023
Report must be faxed to ROCC 202-962-2808 at end of Tour				

Figure 10 - RTRA Supervisor Report *redacted.

Appendix C – Scene Photographs



Figure 11 – Charred trash on the floor of railcar 7221.



Figure 12 – More burned paper remnants. No damage to the floor of railcar 7221.

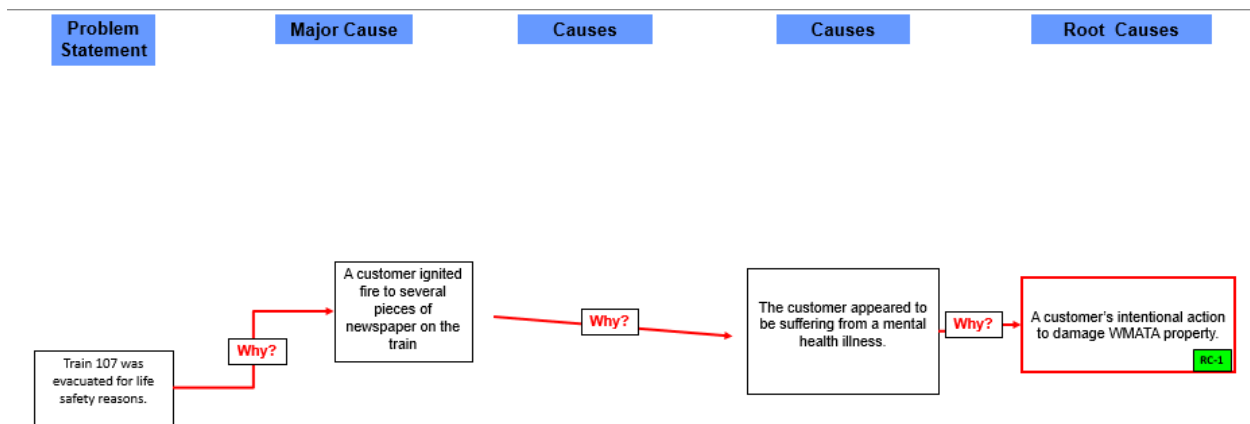


Figure 13 - No damage to the floor underneath the seat of railcar 7221.



Figure 14 - Railcar door #2 is the nearest exit where the trash was ignited.

Appendix D – Why-Tree Analysis



Root Cause Analysis

