



Red Signal Overruns

At or Near New Carrollton, Dulles, Brentwood and West Falls Church rail yards, and King Street-Old Town and Downtown Largo station

January 21, 2024, May 13, 2024, June 6, 2024, September 28, 2024, and July 16, 2024, and August 30, 2024

Document Purpose:

This WMSC written report on WMATA Metrorail's safety event investigations and review of Metrorail's findings in accordance with the WMSC Program Standard, in conjunction with the attached Metrorail investigation reports that have undergone WMSC staff review and, if necessary, feedback and revision, describes the investigation activities, identifies factors causing or contributing to the safety events, and sets forth ongoing, additional, or upcoming corrective actions and further oversight work (such as inspections and audits) as necessary or appropriate. The WMSC's ongoing oversight during the investigative process, including safety event reporting and verification, participation in investigative interviews, data review, consistent communication with the Metrorail investigations team, and feedback on Metrorail's reports leads to further improvements prior to consideration of the reports by WMSC Commissioners for adoption. The WMSC's safety event investigation oversight assures the sufficiency and thoroughness of Metrorail's investigations. The WMSC Commissioners are considering these documents (the WMSC review and Metrorail's investigation reports) as a unified item for adoption at the Washington Metrorail Safety Commission meeting on May 13, 2025.

WMSC staff recommend adoption of these investigations.

Red Signal Overruns

In 2024, Metrorail reported 14 red signal overruns, an increase from the 9 reported in 2023. There have been 6 in the first four months of 2025. This included events involving passenger trains and events involving maintenance vehicles. Since January 2021, there have been a total of 42 red signal overruns, including trains and rail maintenance vehicles operating on both the mainline and in rail yards.

WMSC has conducted its own independent review of these events as they occur to understand the contributing causes and to explore methods for correcting precipitating causes to prevent recurrence. WMSC staff have discussed the specifics with key Metrorail personnel and WMATA has developed corrective action plans to create or improve governing procedures, improve work tools and identify additional types of training for Metrorail employees.

WMSC staff completed an in-depth review of Metrorail safety certification of the Red Line Automatic Train Operations project. This led to WMSC concurring on December 9, 2024, that Metrorail had completed the safety certification process required to implement automatic train operations on the Red Line. The WMSC will continue its in-depth review of the safety certification of the remainder of the project. WMSC's concurrence following this review is needed in order for Metrorail to expand automatic train operations to the rest of the Metrorail system. The WMSC has communicated to Metrorail that in order to receive concurrence on ATO expansion to the Green and Yellow lines, Metrorail must:

- Establish and document a formal, standardized process for reviewing station overruns
- Provide a detailed performance schedule outlining milestones and timelines for the implementation of software update and the new antenna normalization procedure for 7000 Series railcars.



- Enact an interim mitigation to add an additional layer of protection for roadway workers within 800 feet of the 8-car marker that is in addition to the currently existing advanced mobile flagger protection
- Submit monthly train operators', rail traffic controllers' and roadway workers' rules compliance reports to both the ATO Governance Committees and the WMSC
- Provide the governing process for disabling the "Cancel Station Stop" button and the schedule for deactivating the feature on 7000 Series railcars
- Reinstate previous mitigation requiring operators to contact controllers, thereby negating Permanent Order 25-10, or determine another mitigation for the identified hazard associated with roadway workers being struck by trains in ATO

Automatic Train Operations (ATO) is not used in rail yards or during rail maintenance vehicle operation. There are additional instances when ATO cannot be used, including when trains are single-tracking or operating through an interlocking with a signal failure. Of the 42 red signal overruns, 23 involved rail maintenance vehicles or occurred in a rail yard. As mentioned, rail maintenance vehicles cannot use ATO to prevent red signal overruns. Yard operations are not governed by ATO, nor is ATO available for use in yard operations. Therefore 23 of the 42 red signal overruns could not have been prevented by the activation of ATO. Nineteen occurred on the mainline. However, thirteen of these mainline red signal overruns were in modes of operations which would not have been supported with ATO to prevent red signal overruns – such as those mentioned above. Therefore, based on the WMSC's data review of all red signal overrun events since 2021, 6 of the 42 could have been prevented by ATO.

The causes of and contributing factors to the red signal overrun events described in more detail below include:

- Inadequate training, including Metrorail's lack of physical characteristics and territory familiarization and qualification requirements
- Miscommunication between WMATA personnel
- Loss of/lack of focus and situational awareness
- Non-compliance with written rules and procedures
 - Train operator moved passed red signal without permission
 - Automatic Train Control Maintenance (ATCM) personnel did not follow the proper procedures for conducting Cab Signal testing
 - Train Operator did not establish radio communication with terminal supervisor
- Lack of supervisory oversight
- Failure to maintain Remote Terminal Units in a state of good repair
- Inadequate rail traffic controller staffing levels

Investigations W-0371 through W-0376 being considered at the May 13, 2025, led to specific recommended corrective actions (RCA) including:

- Refresher training for Metrorail employees involved with emphasis on red signal operations
- Following an assessment, the insulator joint for signal D99-110 was repositioned so that the train's lead cars are no longer positioned pass the signal



- RTRA Operations Personnel Notice was issued on June 21, 2024, to reinforce protocols for reporting operational discrepancies during train operations
- Signal Maintenance and Engineering conducted a Safety Stand Down session and tabletop review
- PMI 1012 was moved to an overnight schedule and is not allowed to be performed under live train traffic condition
- WMATA reviewed communications procedures between maintenance crews and the Control Center

Metrorail is in the process of implementing WMSC required corrective action plans (CAPs) which mitigate several of the causes and contributing factors noted above, including:

- C-0183 addresses the finding that Metrorail creates safety risks by not requiring and conducting territory familiarization and physical characteristics training and not assessing knowledge of physical characteristics prior to assigning operations personnel work on a line, in a terminal or in a yard (Extension request under review).
- C-0251 addresses the finding that Metrorail ATC Maintenance personnel do not have a uniform understanding of Metrorail procedures, which leads to inadequate completion of safety tasks such as inspection and handling of vital systems, that are required to ensure that track circuits and other element of the ATC system function properly as required to prevent train collisions and to provide other designated safety protections.

Safety event summaries:

W-0371 – New Carrollton Rail Yard – January 21, 2024 (E24062)

On Saturday, January 20, 2024, Train Operator passed a red signal while conducting yard moves at the New Carrollton Rail Yard. At 5:50 a.m., the Train Operator was assigned by an Interlocking Operator to move Train 906 on track 11, located near signal D99-110, to go into revenue service on the mainline. Track 11 is only capable of accommodating 14 cars, however, 16 cars were routinely stored on the track, resulting in the lead car of the lead 8-car consist being in front of the signal. At 5:54 a.m., Interlocking Operator #1 performed a shift change with Interlocking Operator #2. At 6:42 a.m., the Train Operator confirmed their instructions with Interlocking Operator #2, conducted a ground walk around and was then instructed to standby. Six minutes later, at 6:49 a.m., the Train Operator advised the Interlocking Operator that they were at signal D99-90 and was instructed again to standby. The Train Operator performed a rolling brake test and then crossed over switch 109. The Interlocking Operator instructed the Train Operator to standby, and notified Automatic Train Control, Control Center, and Division personnel.

The Train and Interlocking operators were removed from service for post-event testing. An inspection determined there was no damage to the interlocking and normal service resumed in the yard.

Due to this event, the New Carrollton Division developed Tower signage to remind Interlocking Operators that track 11 should only hold a maximum of 14 cars. Additionally, the insulator joint for signal D99-110 was repositioned from beyond the signal to before the signal so that the maximum allowed 14 cars would fit 10 feet behind signal D99-11.

W-0372 – Dulles Rail Yard – May 13, 2024 (E24376)



While performing yard moves, Rail Vehicle Operator #1, who was operating a non-revenue 4-car train consist, overran a red signal in Dulles Rail Yard on Yard Lead Track 1. Just prior to the safety event, Rail Vehicle Operator #1 and Rail Vehicle Operator #2 had been instructed by the Interlocking Operator to move the consist from Track 11 to Track 1E with Operator #1 at the operating end and Operator #2 at the trailing end of the train. The Interlocking Operator advised Operator #1 that they had an absolute block to no closer than 10 feet from signal N99-G18, which was red (stop), and that there was one unit moving ahead. Operator #1 initially repeated back the wrong signal, but then accurately repeated back the correct signal and directions received as required. Rail Vehicle Operator #1 moved their train passed the red signal but was unaware that they had overrun the red signal until Rail Vehicle Operator #2 notified them via the train's inter-car buzzer. Rail Vehicle Operator #1 stopped the train and advised the Interlocking Operator that they were holding at N99-16. The Interlocking Operator notified a Rail Traffic Controller in the Control Center of the red signal overrun and personnel from multiple departments were dispatched to the scene. Automatic Train Control Maintenance personnel inspected switch 17 and found minor damage, which was repaired.

The train was inspected, and it was determined that the train operated as commanded and had no defects that would have caused the overrun. Both Rail Vehicle Operators and the Interlocking Operator were removed from service for post-event toxicology testing. During an investigative interview following the safety event, Rail Vehicle Operator #1 admitted to not paying full attention when they passed the red signal because they were focused on a Prime Mover that was moving in front of them. Rail Vehicle #1 also indicated that it was dark, they were unfamiliar with the yard's layout and signal placement, they did not see the signal and could not recall if it was red.

W-0373 – King Street-Old Town Station – June 6, 2024 (E24465)

At 10:24 a.m., the Train Operator of Train 433, traveling toward King Street-Old Town Station from Van Dorn Street Station, reported to the Rail Traffic Controller in the Control Center that they passed signal C97-12, which was displaying a red (stop) aspect. The Train Operator stated that the signal was red, but that they had speed commands. An investigative review of data confirmed that the train received a 55-mph speed command, which would not have occurred under normal operating conditions. However, just before the safety event, at approximately 10:03 a.m., Automatic Train Control Maintenance (ATCM) personnel began conducting Cab Signaling System testing in the C97 Train Control Room. The Radio Rail Traffic Controller confirmed that at the time the event was reported, the Train had no speed commands. However, the Rail Traffic Controller did not acknowledge that the train did in fact have speed commands when the train passed the red signal. The Rail Traffic Controller granted the Train Operator a permissive block to King Street-Old Town Station. The Train Operator crossed through the interlocking ahead without verifying correct rail alignment, damaging a switch that was set in the reverse position and continued in service toward Downtown Largo Station.

At 10:37 a.m., the Rail Traffic Controller identified on the Advanced Information Management System (AIMS) that the switch was out of correspondence and contacted ATCM personnel, who confirmed, and after inspection, that the switch had been damaged due to a red signal overrun.

The Train Operator was removed from service for post-event toxicology testing and the train was removed from service for inspection. The switch was repaired and placed back into service.



An investigation into this event determined that ATCM personnel did not follow the proper procedures for conducting Cab Signal testing. The use of extender boards during testing allowed a logic override due to a misconfiguration of the equipment, indicating a technical issue stemming from improper setup.

W-0374 – near Brentwood Rail Yard – July 16, 2024 (E24560)

At 1:38 p.m. on July 16, 2024, while remotely monitoring radio traffic as part of regular oversight work, WMSC personnel notified Metrorail's Director of Safety Investigations of a possible red signal overrun at signal B99-16, located between NoMa-Gallaudet and Rhode Island Ave-Brentwood stations. Personnel in the Control Center were not notified of the safety event until it was verified at approximately 1:59 p.m. An investigative review of the Audio Recording System showed at 12:49 p.m., the Rail Traffic Controller granted permission to the Train Operator of Train 143 to allow WMATA personnel to exit the train at the Brentwood Rail Yard northbound stop. During this time, there were ongoing intermittent Remote Terminal Unit (RTU) outages throughout the system, affecting remote train monitoring. RTUs provide remote monitoring and control of devices that are impractical to monitor directly. While RTUs are down, Rail Traffic Controllers are unable to see visual indications for trains and signals in the impacted area. The Rail Traffic Controller was working alone, carrying out the Radio and Button Rail Traffic Controller duties for the first 5-10 minutes of this safety event, while the other Controller assigned to the console was on a personnel break.

The Train Operator reported that their train had no speed commands, and due to miscommunication regarding the location of the train, the Rail Traffic Controller initially granted a permissive block to the 8-car marker at Rhode Island Ave-Brentwood Station. After the Train Operator clarified that they had not reached the station and that their train was located near Chain Marker 119+00, the Rail Traffic Controller inquired if the signal was lunar (proceed). The Train Operator indicated that they could not confirm if the signal was set to lunar because they were positioned on a curve. The Operator was given a permissive block to signal B99-16 red. The Rail Traffic Controller then instructed all Train Operators located at a red signal to hold. The Operator of Train 143 asked if they had been given another permissive block to the northbound platform stop and they were instructed by the Rail Traffic Controller not to pass the red signal. During an investigative interview, the Train Operator confirmed signal B99-16 was red when they moved the train passed it.

Train 143 was removed from service for post-event inspection. The Train Operator, who was off duty at the time the event was confirmed and reported to the Control Center, was no longer on WMATA property, and therefore did not undergo post-incident toxicology testing.

The RTU issue was later resolved by resetting the involved units. WMATA Operations IT indicated 10,351 incidents of the RTUs being in a failed state where communication of data was not possible between February and August 2024. Most of these events were intermittent and self-restored within seconds. WMATA determined the RTU's are outdated and has not identified a timeline for installation of new RTUs. WMATA has since tested and installed new software that has lessened RTU disruption.

W-0375 – Downtown Largo Station – August 30, 2024 (E24687)

During the safety event that occurred on Friday, August 30, 2024, at 9:45 p.m., two Train Operators, who were double-ending (an operator at each end) Train 419, and a terminal supervisor, were all involved in safety violations that lead to a red signal overrun and an improper vehicle movement against the normal flow of traffic without the necessary



protection to prevent train collision. At the time of the event, the interlocking at Largo Terminal had been out of service for approximately one month. This prevented trains from crossing over from Track 1 to Track 2, which is why the Train Operators were instructed to double-end the train. Train Operator #2 took over train operation from Train Operator #1, who had properly berthed Train 419 at Downtown Largo Station's 8-car marker. At the same time, Train Operator #3 boarded the train at the opposite end of the train to stage until directed to take over train operation at their end.

Train Operator #2 overran a red signal while moving the train from the station platform to the tail track just beyond the station platform limits. Prior to the red signal violation, Train Operator #2 entered Stop and Proceed mode without receiving a permissive block from the Downtown Largo Terminal Supervisor, as required by Metrorail policy. The train came to a stop approximately 238 feet beyond the red signal. The Terminal Supervisor identified that Train Operator #2 had passed the red signal after observing a flashing red indication light on the interlocking display board in the terminal and being unable to set a route for the train. When the Largo Terminal Supervisor contacted Train Operator #2, the Train Operator stated that they believed the signal was lunar (proceed). The Terminal Supervisor then incorrectly instructed Train Operator #3 to move the train back to the platform. This instruction did not adhere to Metrorail policy and resulted in the train being moved in the opposite direction of normal train traffic without the proper protection. Approximately 1 minute later, the Terminal Supervisor instructed Train Operator #3 to stop the train. The Largo Terminal Supervisor notified a Rail Traffic Controller in the Control Center and requested Foul Time to investigate the safety event. Additional Metrorail personnel were notified to respond to the scene. Train Operator #2 and the Largo Terminal Supervisor were removed from service for post-event toxicology testing in adherence with Metrorail procedure. Train 419 was also removed from service for post-event inspection, which found that the train operated as commanded.

W-0376 – West Falls Church Rail Yard – September 28, 2024 (E24770)

On Saturday, September 28, 2024, Train Operator #1, who was operating Train 775 in the West Falls Church Rail Yard, overran a red signal in the yard after stopping to pick up Train Operator #2, as directed by the Interlocking Operator. Just prior to the safety event, Train Operator #1 had been granted an absolute block to signal K99-302, which was red (stop). Train Operator #1 stopped at the "admin roadway", an at-grade crossing near an administrative building in the yard and allowed Train Operator #2 to board the train as instructed. After Train Operator #2 boarded, Train Operator #1 moved the train passed signal K99-302, which was red (stop). The Interlocking Operator informed Train Operator #1 that they had passed the red signal and trailed two switches. The Interlocking Operator instructed Train Operator #1 not to move the train, notified a Rail Traffic Controller in the Control Center of the event and WMATA personnel were dispatched to the scene. Train Operator #1 was instructed to perform a ground walk-around inspection. Track inspections confirmed the train overran the signal by 430 feet and switch 303A by almost 95 feet. The switch was in normal position and had no damage. Train Operator #2 was disqualified as a Rail Vehicle Operator due to the severity of prior violations.



Washington Metropolitan Area Transit Authority
Department of Safety (SAFE)
Office of Safety Investigations (OSI)
FINAL REPORT OF INVESTIGATION A&I E24062

Date of Event:	January 21, 2024
Type of Event:	Red Signal Overrun
Incident Time:	06:49 hours
Location:	New Carrollton Yard, track 11 – Signal D99-110
Time and How received by SAFE:	07:12 Hours
WMSC Notification Time:	08:00 Hours
Responding Safety Officers:	WMATA: Office of Safety Investigations (OSI) WMSC: None Other: None
Rail Vehicle:	Train ID 906 L7176/77x7073/72x7453/52x7203/02T
Injuries:	None
Damage:	None
SMS I/A Incident Number:	20240121#114151MX

New Carrollton Yard – Red Signal Overrun

January 21, 2024

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Abbreviations and Acronyms

ARS	Audio Recording System
ATC	Automatic Train Control
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CMOR	Office of the Chief Mechanical Officer
IIT	Incident Investigation Team
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OAP	Operations Administrative Policy
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
SAFE	Department of Safety
SMS	Safety Measurement System
TRST	Track and Structures
VMDS	Vehicle Monitoring and Diagnostic System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Washington Metropolitan Area Transit Authority
Department of Safety – Office of Safety Investigations

Executive Summary

**Note that all times listed are approximate and may contain minor variations due to differences between systems of record. **

On Sunday, January 21, 2024, at 06:59 hours, Interlocking Operator #2 at New Carrollton Yard reported a Red Signal Overrun to the Metro Integrated Command & Communications Center (MICC).

Prior to the event, at 06:43 hours, Interlocking Operator #1 assigned the Train Operator to the leading 8-car consist to be identified as Train ID 906 (L7176/77x7073/72x7453/52x7203/02T) located on track 11, and after the walk around inspection instructed the Train Operator to key up and stand by.

At 06:49 hours, the Train Operator was performing a roll/rolling brake test, passed signal D99-110, displaying a red aspect, traversed switch 109, and stopped ahead of signal D99-94, displaying a red aspect. The Train Operator reported that they made a mistake and did not see the signal. The Train Operator reported to Interlocking Operator #2 that the train was stopped at signal D99-90 red; the Interlocking Operator instructed the Train Operator to stand by.

At 06:52 hours, Interlocking Operator #2 notified the Office of Automatic Train Control Maintenance (ATCM) personnel of the event. The ATCM personnel confirmed the red signal overrun.

Interlocking Operator #2 notified the Radio Rail Traffic Controller (RTC) of the event. The Radio RTC notified the Assistant Operations Manager (AOM) of the event. The Office of Safety Investigations (OSI) was dispatched to New Carrollton Yard.

At 08:42 hours, ATCM personnel determined that there was no damage to the switches, and normal operations within New Carrollton Yard resumed.

In adherence to Standard Operating Procedure 102-01-02, which outlines the protocol for Removing an Employee from Service for involvement in an operational safety event, the Radio RTC dispatched a Rail Supervisor to relieve the Train Operator and Interlocking Operator #2 from duty for post-incident testing.

In accordance with the Office of the Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Operations Administrative Policy (OAP) 102.06, the MICC promptly initiated the removal of Train ID 906 from service for post-incident investigative measures. This action adhered to the Rail Vehicle Event Investigation Policy, ensuring a comprehensive examination of the incident.

The probable cause of the Red Signal Overrun event at New Carrollton Yard on January 21, 2024, was that the Train Operator did not notice that the train was stored in alignment with signal D99-110. A contributing factor was that sixteen rail cars could not be secured ten feet behind signal D99-110, and the insulator joint was positioned to allow sixteen rail cars to be stored less than ten feet behind signal D99-110.

Incident Site

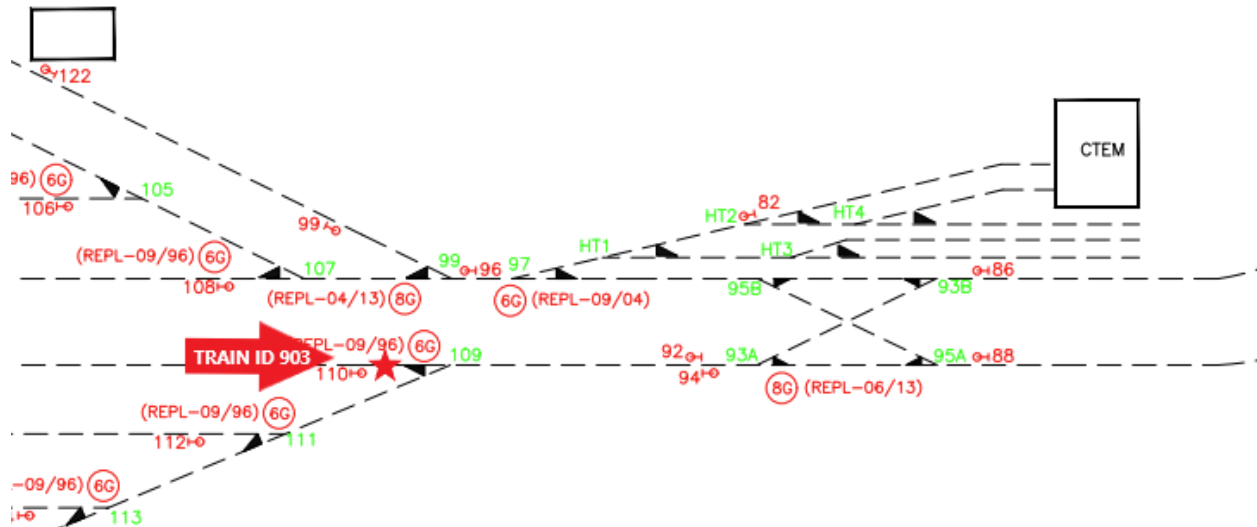
New Carrollton Yard, track 11 – Signal D99-110

Incident Date: 01/21/2024 Time: 06:49 hours
Final Report – Red Signal Overrun
E24062

Drafted By: SAFE 711 – 03/21/2024
Reviewed By: SAFE 707 – 03/21/2024
Approved By: SAFE 707 – 03/21/2024

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Field Sketch/Schematics



The above depiction is not to scale.

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:

- Physical Site Assessment
- Formal Interviews – SAFE interviewed two individuals as part of this investigation. Interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individuals:
 - Train Operator
 - Interlocking Operator #2
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
 - Train Operator Written Statement
 - Train Operator Training Records
 - Train Operator Certifications
 - Train Operator 30-Day work history review
 - Interlocking Operator Written Statement
 - Interlocking Operator Training Records
 - Interlocking Operator Certifications
 - Interlocking Operator 30-Day work history review
 - Metrorail Operating Rulebook (MOR)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Metro Integrated Command and Control (MICC) Incident Report
 - Maximo Data

- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback
 - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Vehicle Monitoring and Diagnostic System (VMDS)
 - Closed-Circuit Television (CCTV)

Investigation

On Saturday, January 20, 2024, at 22:47 hours, Train ID 904 (L7202/03x7452/53x7072/73x7177/76L) entered New Carrollton Yard and was secured on track 11 with an additional 8-car consist ahead.



Image 1 - Image of the consist secured next to signal D99-110 at 22:50 hours on January 20, 2024.

On Sunday, January 21, 2024, at 05:50 hours, Interlocking Operator #1 instructed the Train Operator of Train ID 906 (L7176/77x7073/72x7453/52x7203/02T) to take the north eight cars and leave 8 cars on track 11.

At 05:54 hours, the Interlocking Operators performed a shift change.

At 06:43 hours, the Train Operator of Train ID 906 contacted Interlocking Operator #2 to confirm that they were to take the leading eight cars on track 11. Interlocking Operator #2 confirmed and then instructed the Train Operator to key up and stand by. The Train Operator performed a ground walk-around inspection before boarding the train.

At 06:49 hours, the Train Operator was performing a roll/rolling brake test, passed signal D99-110 displaying a red aspect, traversed switch 109, and then stopped the train ahead of signal D99-94. The Train Operator reported to Interlocking Operator #2 that Train ID 906 was located at signal D99-90. Interlocking Operator #2 instructed the Train Operator to stand by.



Image 2 - Image of Train ID 906 and signal D99-110 (left); image of Train ID 906 (L7176) stopped in front of signal D99-94 (right).

At 06:52 hours, Interlocking Operator #2 requested ATCM personnel to respond to the Tower, then advised that they did not give Train ID 906 a lunar. The ATCM personnel exited the Tower to perform an inspection and then advised Interlocking Operator #2 that switch 109 was trailed, confirming a red signal overrun.

At 06:59 hours, Interlocking Operator #2 reported the red signal overrun to the MICC. The Radio RTC notified the AOM of the event. The OSI was dispatched to New Carrollton Yard.

At 07:01 hours, the AOM was notified of the incident and dispatched an RTRA Supervisor. At 07:33 hours, an RTRA Supervisor removed the Train Operator from service for post-incident testing.

At 08:00 hours, OSI arrived at New Carrollton Yard. At 08:35 hours, ATCM personnel determined that there was no damage to the switches. At 08:41 hours, the consist was moved and secured on track 10. At 08:45 hours, normal operations within New Carrollton Yard resumed.

On September 14, 2024, Rail Transportation developed a Red Signal Overrun Prevention Strategy to remind Interlocking Operators to refrain from storing more than fourteen rail cars on track 11.

On October 29, 2024, Communications and Signaling reviewed historical records and determined that two 8-car trains could not be sufficiently stored 10 feet behind signal D99-110. On October 29, 2024, the Office of Track and Structures (TRST) requested track rights to adjust the insulated joint at signal D99-110. On October 30, 2024, TRST repositioned the insulator joint for signal D99-110 which prevents sixteen rail cars from being stored on track 11.

Chronological Event Timeline

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

Time	Description
January 20, 2024	
22:47:47 hours	<u>Train ID 904</u> : Requested to enter New Carrollton Yard. <u>Interlocking Operator #1</u> : Granted permission. Instructed to secure the consist ahead of 8 cars on track 11. <u>Train ID 904</u> : Acknowledged [Radio NC-YD2]
22:57:00 hours	The consist was secured next to signal D99-110. [CCTV]
January 21, 2024	
05:50:58 hours	<u>Interlocking Operator #1</u> : Instructed the Train Operator to take 8 cars and leave 8 cars on track 11 north. [Phone D99]
05:54:55 hours	The Interlocking Operator shift change occurred. [Ambient D99]
06:43:16 hours	<u>Train ID 906</u> : Contacted to confirm that they were to take the lead 8 cars on track 11. <u>Interlocking Operator #2</u> : Confirmed, then instructed to key up and stand by. <u>Train ID 906</u> : Acknowledged [Phone D99]
06:49:24 hours	<u>Train ID 906</u> : Reported located at signal D99-90. <u>Interlocking Operator #2</u> : Instructed to stand by. [Radio NC-YD2]
06:52:56 hours	<u>Interlocking Operator</u> : Requested ATC to respond to the tower. <u>ATCM</u> : Acknowledged [Phone D99]
06:57:00 hours	The Interlocking Operator advised ATC that they did not set a lunar at D99-110. ATCM departed the tower to inspect the switches. [Ambient D99]
06:58:57 hours	<u>Interlocking Operator #2</u> : Notified the Rail Supervisor of the event. [Phone D99]
06:59:42 hours	<u>Interlocking Operator #2</u> : Notified the MICC of the event. [Phone D99]
07:01:20 hours	<u>Button RTC</u> : Notified the AOM of the event. [Phone Ops 2]
07:02:05 hours	<u>Interlocking Operator #2</u> : Notified the Division Superintendent of the event. [Phone D99]
07:33:0 hours	RTRA Supervisor removed the Train Operator from revenue service for post-incident testing. [MICC Report]
08:00:00 hours	SAFE arrived at New Carrollton Yard. [CCTV]
08:41:00 hours	The consist was moved and secured on track 10. [Radio NC-YD2]
08:45:00 hours	ATCM and SAFE cleared the interlocking at New Carrollton Yard, and normal operations resumed. [Radio NC-YD2]

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

The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS) Timeline

Adopted from CMOR IIT report:

Train ID 906, **Cars 7616-17x7073-72x7432-33x7203-02**, was reported for a Red Signal Overrun at New Carrollton Yard.

Train ID 906 keyed up on the Open end of track #11 at New Carrollton Yard. The Doors on both sides were opened and closed and then Stop and Proceed was initiated.

The Master Controller was moved to a P1-P4 Power position, and the train moved North, away from the bump post. The train came to a stop after traveling 33 ft., traveling at speeds no greater than 3 MPH, moving beyond the D99-110 signal.

The Master Controller was again placed in a P1-P4 Power position and the train began to move North. As the train was coming to a stop the Deadman was released and emergency braking was initiated. The train stopped after traveling an additional 126 ft. A total of 159 ft. traveled after initially keying up.

The train stopped short of the D99-94(RED) signal and keyed down.

NVR video shows that signal D99-110 cannot be seen from the train's forward-facing camera, and its location and/or state cannot be verified with video.

Based on the VMS data, the train performed as commanded. There was no fault with the train that contributed to the cause of this incident.

Time	Description
06:42:21.670	Train ID906 Lead Car 7176 keyed up on the Open end of 11 Trk. Facing D99-110 signal.
06:47:44.790	Open Door Left Pushbutton activated, Opening Left Doors
06:47:46.730	Open Door Right Pushbutton activated, Opening Right Doors.
06:47:52.390	Door Close Left Pushbutton activated, Closing Left Doors
06:48:02.390	Door Close Right Pushbutton activated, Closing Right Doors
06:48:52.030	Stop and Proceed activated.
06:48:53.830	Master Controller placed in a P1-P4 Power position
06:48:5.520	Train begins to move north on Track 11.
06:49:03.770	Master Controller placed in a B1-B3 Braking position,
06:49:05.540	Master Controller placed in a B4 Braking position
06:49:07.540	Train comes to a complete stop after traveling a total 33 ft. moving at speeds no greater than 3 MPH.
06:54:12.720	Master Controller placed in a P1-P4 Power position.
06:54:14.170	Train begins to move again north on Track 11, beyond the D99-110 Signal.
06:54:46.950	Master Controller placed in B4 braking position.
06:54:47.880	Master Controller Handle Released activating dead man feature, initiating emergency Braking.

Time	Description
06:54:48.940	Train comes to a complete stop after traveling an additional total 126 ft. moving at a speeds no greater than 4.5 MPH. Train traveled a Total distance of 159 ft. after keying up. Stopping Short of D99 -94 signal
07:00:39.270	Car 7176 keyed down
07:00:43.620	Car 7176 keyed up
07:01:53.160	Car 7176 keyed down
07:02:54.370	Car 7176 keyed up
07:14:37.970	Car 7176 keyed down

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

Office of Car Maintenance (CMNT)

CMNT reported a good daily safety test and inspection on rail car 7176. A master controller operation and brake rate check from the lead car was conducted and passed the check. No wheel flats or spalling were found.

Office of Systems Maintenance, Office of Radio Communications (COMR)

No Radio communications issues were observed.

Automatic Train Control (ATC)

ATC responded to the scene and assessed that no mechanical faults with the equipment were observed, and no damage was caused as a result of the incident.

On October 29, 2024, Communications and Signaling reviewed historical records and determined that two 8-car trains could not be sufficiently stored 10 feet behind signal D99-110.

Office of Track and Structures (TRST)

On October 29, 2024, TRST requested track rights to adjust the insulated joint at signal D99-110. On October 30, 2024, TRST repositioned the insulator joint for signal D99-110.

Office of Rail Transportation (RTRA)

Adopted from RTRA report:

RTRA determined that the Train Operator was in violation of passing a Red Signal and discipline was cited in accordance with the Discipline Administration Program and scheduled to attend refresher training.

Train Operator

- Train Operator since date December 19, 2023.
- Train Operator has been employed with WMATA since July 30, 2023.
- Train Operator worked a total of 42 hours within the last seven (7) days. There were no reported instances of overtime and/or 8-hour rule violations noted within Trapeze.
- Train Operator's last certification date is December 18, 2023.
- There were no reported discrepancies with the Train Operator's performance and/or fitness for duty.

- Recent Incidents - None

Interlocking Operator #2

- Interlocking Operator has been performing interlocking duties since August 5, 2022.
- Interlocking Operator has been with WMATA since date April 28, 2008.
- Interlocking Operator worked a total of 64 hours within the last seven (7) days.
- Interlocking Operator's last certification dates are - Interlocking March 13, 2022, and Train Operation August 5, 2022.
- There were no reported discrepancies with the Interlocking Operator's performance and/or fitness for duty.
- Interlocking Operator's recent incidents- 1) November 19, 2023, Level II Safety/Operational Violation for failure to report incident immediately/failure to wear a safety vest. 2) January 3, 2024, Red Signal Overrun (D99-42) by PM43 - investigation on-going. 3) January 3, 2024, Red Signal Overrun (D99-110) by Train Operator - pending investigation.

Interview Findings

Train Operator

- The Train Operator stated that just prior to the red signal overrun event, they checked where they had to go and called the Tower.
- The Train Operator stated that, they did not see a signal and called the Tower again, but it was an overrun by that time.
- The Train Operator stated they were not aware that track 11 holds two trains each with 8 cars.
- The Train Operator said that apparently, when there are two trains on the track, the lead car is a little bit past the signal—the Train Operator said they were not aware of that.

Interlocking Operator #2

- The Interlocking Operator stated that just prior to the incident, they were setting up trains for dispatching and responding to calls for train IDs that they were supposed to be on.
- The Interlocking Operator stated that they were holding the trains, and one of the operators called them.
- The Interlocking Operator stated that the Train Operator called them again over the radio and that they were holding at the 94 signal.
- The Interlocking Operator said that at that time, by looking at the board, they knew that the Train Operator had passed the lead coming off his track at Delta 99-110.
- The Interlocking Operator stated that they told the Train Operator about the Train Operator's location and told to hold at the location.
- The Interlocking Operator then called the ATC and notified the Superintendent.

Weather

On January 21, 2024, at the time of the incident, NOAA recorded the temperature as 23°F, with passing clouds, winds 12 mph, and 55% humidity. The weather was not a contributing factor in this incident (Weather source: NOAA) – Location: New Carrollton, MD.

Related Rules and Procedures

Metrorail Operating Rulebook –

1.1 Guiding Safety Principles

1.2 Incident Reporting

3.1 Passing a Stop Signal

3.3 Signals Requiring a Stop

3.4 Improperly Aligned Switches

Human Factors

Fatigue

Signs and Symptoms of Fatigue

Train Operator

We evaluated signs and symptoms of fatigue that may have been present at the time of the incident. No signs or symptoms of fatigue were detected from the available data. Video of the incident was reviewed for signs of the Train Operator's fatigue. No signs or symptoms of fatigue were evident from the video. The Train Operator reported feeling fully alert at the time of the incident. The Train Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Interlocking Operator #2

We evaluated conditions of at the time of the incident to distinguish whether evidence of fatigue was present. No video of the Interlocking Operator was available to ascertain whether evidence of fatigue was present. The Interlocking Operator reported feeling fully alert at the time of the incident. The Interlocking Operator reported experiencing no symptoms of fatigue in the time leading up to the incident. We evaluated incident data for fatigue risk factors. Risk factors for fatigue were present.

Fatigue Risk

Train Operator

We evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Train Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Train Operator worked one shift in the days leading up to the incident. The Train Operator was awake for **2.3** hours at the time of the incident. The Train Operator reported 8 hours of sleep in the 24 hours preceding the incident. The off-duty period was **11.2** hours which provides an opportunity for 7-9 hours of sleep. This was more than the Train Operator's usual workday sleep durations. The Train Operator reported no issues with sleep.

Interlocking Operator #2

We evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Interlocking Operator reported keeping a regular sleep schedule in the days leading up to the incident. The

Interlocking Operator worked one shift in the days leading up to the incident. The Interlocking Operator was awake for 2.8 hours at the time of the incident the Interlocking Operator reported 8 hours of sleep in the 24 hours preceding the incident. The off-duty period was 48 hours which provides an opportunity for 7-9 hours of sleep. This was more than the Interlocking Operator's usual workday sleep durations. The Interlocking Operator reported no issues with sleep.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Train Operator complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

WMATA's Drug and Alcohol Program determined that Interlocking Operator #2 complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Findings

- The Train Operator reported that this was their first time taking a train to mainline operations that was secured in front of another train.
- The Train Operator was unaware of the placement of governing signal D99-110.
- All new Rail Vehicle Operators and Interlocking Operators completed Yard Familiarization training.

Immediate Mitigation to Prevent Recurrence

- ATCM inspected and restored switch 109.
- The Train Operator was removed from service.
- Interlocking Operator #2 was removed from service.
- Division Management had discussions with Interlocking Operators about red signal overruns and prevention strategies.

Probable Cause Statement

The probable cause of the Red Signal Overrun event at New Carrollton Yard on January 21, 2024, was that the Train Operator did not notice that the train was stored in alignment with signal D99-110. A contributing factor was that sixteen rail cars could not be secured ten feet behind signal D99-110, and the insulator joint was positioned to allow sixteen rail cars to be stored less than ten feet behind signal D99-110.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
114151MX _SAFECAPS_ RTRA_001	Train Operator to attend Refresher Training with an emphasis on Rail Vehicle Operators removing Class 1 rail vehicles from storage or preparing Class 1 rail vehicles for revenue service	RTRA	Completed
114151MX _SAFECAPS_ RTRA_002	New Carrollton Division will develop a sign for the Tower to remind Interlocking Operators that track 11 should only hold a maximum of 14 cars.	RTRA	Completed

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
114151MX _SAFECAPS_ COSI_001	Communications and Signaling will review whether an assessment has been conducted at D99 at the D99-110 signal; if not, they will decide on a path forward.	COSI	Completed
114151MX _SAFECAPS_ TRST_001	Reposition the insulator joint for signal D99-110.	TRST	Completed

Appendices

Appendix A – Interview Summaries

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 are a WMATA employee with 7 months of service and have been in their current position for approximately 1 month, working out of the New Carrollton Rail Station. The Train Operator stated that they hold an RWP Level 2 Certification that expires in August 2024.

The Train Operator stated that just prior to the red signal overrun event, they checked where they had to go and called the Tower. The Train Operator stated that they did not see a signal and called the Tower again, but it was an overrun by that time.

The Train Operator stated they were not aware that track 11 holds two trains each with 8 cars. The Train Operator was the lead train. They said that apparently when there are two trains on the track, the lead car is a little bit past the signal—the Train Operator said they were not aware of that. They thought the signal would be directly in front of them.

The Train Operator stated that they got confused and made a mistake. The Train Operator said that they conducted a ground walk around the train. This was the first time they had encountered having two trains on one track. They called the Tower again; the Tower told them to hold because they overran the signal.

The Train Operator said they performed a rolling brake test and door operation before notifying the Tower. The Train Operator said that they sometimes had radio communication issues, but they did not experience any issue on that day. The Train Operator explained that they had a great training, including their yard instruction. They offered their sincere apology for making a mistake and the willingness to learn from it.

Interlocking Operator #2

The Interlocking Operator stated they are a WMATA employee with approximately 15 years of service and have been in their current position for about 5 years and work out of the New Carrollton Rail Station. The Interlocking Operator stated that they hold an RWP Level 2 Certification that expires in October 2024.

The Interlocking Operator stated that just prior to the incident, they were setting up trains for dispatching and responding to calls for train IDs that they were supposed to be on. The Interlocking Operator stated that they were holding the trains and one of the operators called them. The Train Operator told the Interlocking Operator that they were calling because radio communication was bad and did not know if they heard the Train Operator, standing by the signal. The Interlocking Operator told them to stand by.

The Interlocking Operator stated that the Train Operator called them again over the radio and that they were holding at the 94 signal. The Interlocking Operator said that at that time, by looking at the board, they knew that the Train Operator had passed the lead coming off his track at Delta

99-110. The Interlocking Operator stated that they told the Train Operator about the Train Operator's location and told to hold at the location. The Interlocking Operator then called the ATC and notified the Superintendent.

The Interlocking Operator stated that the Train Operator was on track 11 with 16 cars. The Interlocking Operator stated that when asked, 16 cars are supposed to fit on the track; however, the train would straddle the track signal, so the train would pass the signal, having the track governing signal behind them. The Interlocking Operator explained that track 9 has similar situation and that the situation is also the same at the West Falls Church.

The Interlocking Operator stated that they have safety concerns, as there is no reason the governing signal should be behind the train. The governing signal should be at least 10 feet ahead of the train. The Interlocking Operator recalled the involved train number was 906 and when asked, the Interlocking Operator opined that the Train Operator was not at fault as a new operator because the signal was behind the Train Operator.

Appendix B – Certifications



TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name:	[REDACTED]	Position:	Rail Training	Date:	12-11-2023
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Reason for Certification: Please place a check in an area below.

☒ Certification: Student ☐ Pre-certification: Student ☐ Division Request ☐ Re-Certification ☐ Return to Duty ☐ Other _____

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MOR attempt # 1st	85 %	11-2-2023	MOR	✓	
TVOIM/TOIM attempt # 2nd	83 %	11-6-2023	Perm/Temp/Special Orders		✓
Supervisor Combination attempt #	%		Troubleshooting Guide	✓	
Practical attempt #: 1st	91-3	12-11-2023	Flashlight	✓	
			Safety Vest	✓	
			Footwear	✓	
			Identification (One Badge, RWP)	✓	

Comments:

Needs Second Attempt on Troubleshooting
Needs Second Attempt on Train Preparation

Signatures:	Date:
Employee: [REDACTED]	12-11-2023
Examiner: [REDACTED]	12/11-2023

Document 1 – Train Operator's First Attempt Certification, Page 1 of 2

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3) - ALL TIMES (are in minutes)
I. Preparation for Service	3	Cars Used: 7700 7727 7208 7541
1. Exterior Inspection	1	(7208) BCO (7209) BCO (7541) Rotary Drum
2. Interior Inspection - Trailing Cab	1	(7208) Horn CLO
3. Interior Inspection - Each Car	1	
4. Interior Inspection - Oper. Cab	3	(7540) Tail Marker CIB (Failed to lock bulkhead door)
5. Rolling Test / Rolling Brake Test	1	
		Time Allotted: 35:00 / Actual Time: 22:38
II. Mainline Operation	1	
6. Communications	1	
7. Door Oper. & Station Stopping	1	
8. Use of Horn	1	
9. Speed Adherence/Manual Oper.	1	
10. Turn Back Moves	1	Location: Franconia Spg Time Allotted: 02:00 / Actual Time: 1:56
11. Manual Route Selection	1	Location: J0116
12. EV Shutoff	1	Time Allotted: 00:30 (01:00) / Actual Time: 2 seconds
III. Yard Operation	1	
13. Communications	1	
14. Yard Movements	1	
15. Coupling	1	Time Allotted: 08:00 (12:00) / Actual Time: 6:32 Cars Used: 7701 + 7727
16. Uncoupling	1	Time Allotted: 05:00 (07:30) / Actual Time: 4:53 Cars Used: < 7726 + 7208
17. Isolation (Self-Recovery)	1	Time Allotted: 15:00 (22:30) / Actual Time: 14:49 Cars Used: 7726 / 7208
18. Manual Switch Operation	1	161 (C99)
IV. Miscellaneous	3	
19. Recovery Train Operation	1	Time Allotted: 12:00 (18:00) / Actual Time: 8:33 Cars Used: 7726 + 7208
20. Troubleshooting	1	Problem 1 (7727) Passenger Door Open 5:42
	3	Problem 2 (7701) Friction Brake C/B No Reset 3:12
		Troubleshooting Problem #2: Student Operator followed for a Brakes In Emergency



CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
I. Preparation for Service	PASS	Cars Used: 7310-7311X7387-7386
1. Exterior Inspection	PASS	#7386 BCCOF BCO #7387 Unsecured Barrier #7387 Rotary Drum
2. Interior Inspection - Trailing Cab	PASS	#7310 Horn C/O
3. Interior Inspection - Each Car	PASS	#7310 Open Equipment Access Panel
4. Interior Inspection - Oper. Cab	PASS	#7386 C/B tripped
5. Rolling Test / Rolling Brake Test	PASS	
		Time Allotted: 35:00 / Actual Time: 21:22
II. Mainline Operation	N/A	
6. Communications	N/A	
7. Door Oper. & Station Stopping	N/A	
8. Use of Horn	N/A	
9. Speed Adherence/Manual Oper.	N/A	
10. Turn Back Moves	N/A	Location: Time Allotted: 02:00 / Actual Time:
11. Manual Route Selection	N/A	Location:
12. EV Shutoff	N/A	Time Allotted: 00:30 (1:00) / Actual Time: :
III. Yard Operation		
13. Communications	N/A	
14. Yard Movements	N/A	
15. Coupling	N/A	Time Allotted: 08:00 (12) / Actual Time: Cars Used:
16. Uncoupling	N/A	Time Allotted: 05:00 (7.5) / Actual Time: Cars Used:
17. Isolation (Self-Recovery)	N/A	Time Allotted: 15:00 (22.5) / Actual Time: Cars Used:
18. Manual Switch Operation		
IV. Miscellaneous	N/A	
19. Recovery Train Operation	N/A	Time Allotted: 12:00 (18) / Actual Time: Cars Used:
20. Troubleshooting	PASS	Cars Used: 7592-7593X7361-7360X7310-7311X7387-7386
# 1 Brakes in Emergency (EBTL tripped no reset) #7360 3:15 (9:45-9:49)		
# 2 No All Doors Closed (EEDR Activated) #7361 3:52 (9:52-9:55)		

RTA-906-01-00

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 2

Document 4 - Train Operator's Second Attempt Certification, Page 2 of 2

Incident Date: 01/21/2024 Time: 06:49 hours
Final Report – Red Signal Overrun
E24062

Drafted By: SAFE 711 – 03/21/2024
Reviewed By: SAFE 707 – 03/21/2024
Approved By: SAFE 707 – 03/21/2024

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TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name: [REDACTED]	Emp. No: [REDACTED]	Division: West Falls	Date: August 5, 2022
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Reason for Certification: Please place a check in an area below.	Training Time Received: Please record training time in an area below.
<input type="checkbox"/> Certification: Student <input type="checkbox"/> Pre-certification: Student <input type="checkbox"/> Division Request	Rail Training: Weeks: _____ Days: _____ Hours: _____ OIT: _____
<input checked="" type="checkbox"/> Re-Certification <input type="checkbox"/> Return to Duty <input type="checkbox"/> Other _____	Division Training: Weeks: _____ Days: _____ Hours: _____ OIT: _____
	<small>NOTE: OIT time is not separate from Weeks/Days/Hours.</small>

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MSRPH version #:	88%	August 5, 2022	MSRPH	X	
TVOIM/TOIM	84%	August 5, 2022	Perm/Temp/Special Orders	X	
Supervisor Combination	%		Troubleshooting Guide	X	
Practical attempt #: 1	QL- 1	August 5, 2022	Flashlight	X	
			Safety Vest	X	
			Footwear	X	
			Identification (One Badge, RWP) 10/22	X	

Corrective Actions Required	Date Due	Complete	Initials
Forwarded to:		Date: August 5, 2022	

Certification Information: To be completed by QA/QC Staff		Signatures:	Date:
Emp. No: 010022	Date of Birth: 09/21	[REDACTED]	August 5, 2022
Date Last Qualified:	Certification Class:		August 5, 2022
Due Date Next Qualification:	Corrective Lenses: N		
Date Qualification Expires:	Restrictions:		
		Reviewed by:	

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3) – ALL TIMES (are in minutes)
I. Preparation for Service		Cars Used: 7496-7315
1. Exterior Inspection	QL-1	Rotary drum switch 7497 Brake pipe trainline c/o valve 7496 Barrier hanging 7315
2. Interior Inspection - Trailing Cab	QL-1	ATP no seal 7314
3. Interior Inspection - Each Car	QL-1	Door valance 1&2 7314 Headlight c/o 7497
4. Interior Inspection - Oper. Cab	QL-1	Door interlock no seal 7496
5. Rolling Test / Rolling Brake Test	QL-1	
		Time Allotted: 35:00 / Actual Time: 23:19 :
II. Mainline Operation		
6. Communications	QL-1	Communicated with K99 tower & Ops 4
7. Door Oper. & Station Stopping	QL-1	K05
8. Use of Horn	QL-1	
9. Speed Adherence/Manual Oper.	QL-1	
10. Turn Back Moves	QL-1	Location: K04 Time Allotted: 02:00 / Actual Time: :47 :
11. Manual Route Selection	QL-1	Location: K04 04
12. EV Shutoff	QL-1	Time Allotted: 00:30 (01:00) / Actual Time: :08:
III. Yard Operation		
13. Communications	QL-1	Communicated with K99 tower
14. Yard Movements	QL-1	
15. Coupling	QL-1	Time Allotted: 08:00 (12:00) / Actual Time: 5:30: Cars Used: 7085+7233 +
16. Uncoupling	QL-1	Time Allotted: 05:00 (07:30) / Actual Time: :3:22 Cars Used: <7314-7232 >
17. Isolation (Self-Recovery)	QL-1	Time Allotted: 15:00 (22:30) / Actual Time: 13:22: Cars Used: 7496-7315-7232-7085
18. Manual Switch Operation	QL-1	Switch 127
IV. Miscellaneous		
19. Recovery Train Operation	QL-1	Time Allotted: 12:00 (18:00) / Actual Time: 7:17: Cars Used: 7496-7315-7232-7085 +
20. Troubleshooting	QL-1	No all doors closed (EEDR) 7315 Actual time: 4:28
	QL-1	BIE mushroom depressed (7232) Actual time: 2:13

Document 6 - - Interlocking Operator's Train Operations Certification, Page 2 of 2

Incident Date: 01/21/2024 Time: 06:49 hours
 Final Report – Red Signal Overrun
 E24062

Drafted By: SAFE 711 – 03/21/2024
 Reviewed By: SAFE 707 – 03/21/2024
 Approved By: SAFE 707 – 03/21/2024

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INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name:	[Redacted]	Emp. No:	[Redacted]	Division:	West Falls	Date:	3/13/22
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Reason for Certification: <i>Please place a check in an area below:</i>		Training Time Received: <i>Please record training time in an area below:</i>	
<input type="checkbox"/> Certification: Student	<input type="checkbox"/> Pre-certification: Student	<input type="checkbox"/> Division Request	
<input checked="" type="checkbox"/> Re-Certification	<input type="checkbox"/> Return to Duty	<input type="checkbox"/> Other	
Rail Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____		Division Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____	
<small>NOTE: OJT time is not separate from Weeks/Days/Hours.</small>			

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
Terminal Procedures	%		MSRPH	✓	
Interlocking Procedures	%		Perm/Temp/Special Orders	✓	
Practical attempt # 1	QL- 1	3/13/22	Troubleshooting Guide	✓	
			Flashlight	✓	
			Safety Vest	✓	
			Footwear	✓	
			Identification (WMATA, RWP)	✓	

Corrective Actions Required	Date Due	Complete	Initials
Forwarded to:	Date:		

Certification Information: <i>To be completed by QA/QC Staff</i>		Signatures:		Date:
Emp. No:	[Redacted]	Date of Birth:	[Redacted]	3/13/22
Date Last Qualified:	2/13/22	Certification Class:	1	
Due Date Next Qualification:		Corrective Lenses:	N/A	
Date Qualification Expires:		Restrictions:	N/A	
Reviewed by:		[Redacted]		

Rev. May 1, 2020 - RTRA QA/QC

INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 1

Document 7 - - Interlocking Operator's Interlocking Operations Certification, Page 1 of 2

Incident Date: 01/21/2024 Time: 06:49 hours
Final Report – Red Signal Overrun
E24062

Drafted By: SAFE 711 – 03/21/2024
Reviewed By: SAFE 707 – 03/21/2024
Approved By: SAFE 707 – 03/21/2024

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CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
Terminal Operations		
I. Command, Control & Coordination of Terminal Operations		Terminal Location:
1. Interlocking Panel Operations		
2. Communication		
3. Problem Solving		Problem 1:
		Problem 2:
4. RPM System Operations		
5. Terminal Documentation		
II. Manual Terminal Operations		
6. Manual Switch Operations		
Interlocking Operations	<i>OP-1</i>	
1. Manual Switch Operations	<i>1</i>	
2. Interlocking Panel Operations	<i>1</i>	
3. RPM System Operations	<i>1</i>	
4. Yard Power Panel Operations	<i>1</i>	
5. Problem Solving	<i>1</i>	Problem 1: <i>Don't Problem</i>
		Problem 2: <i>Switch out correspondence # (313)</i>
6. Documentation	<i>1</i>	
7. Communication	<i>1</i>	
8. Yard and Shop Moves	<i>1</i>	

Appendix C – Work Orders



Washington Metropolitan Area Transit Authority Maintenance and Material Management System Work Order Details

Page 1 of 2
MX76PROD

Work Order #: 18359049
Type: CM



Status: COMP
01/21/2024 20:53

Work Description: Train 906 overran D99-110 signal in New Carrollton Yard blocking trains in the yard for revenue service. Train operator was removed from service. Gap trains implemented to mitigate customer delays

Job Plan Description:

Work Information			
Asset: R7176	7176, RAIL CAR, KAWASAKI, 7000 AC, A CAR	Owning Office: CMNT-CMNT-CMNT	Parent:
Asset Tag: R7176		Maintenance Office: CMNT-SDYG-INSP	Create Date: 01/21/2024 10:05
Asset S/N: 7176		Labor Group: CMNT	Actual Start: 01/21/2024 10:10
Location: 1136	A99, SHADY GROVE YARD	Crew:	Actual Comp: 01/21/2024 20:53
Work Location: 1230	D99, NEW CARROLLTON YARD	Lead:	Item: K18050001
Failure Class: CMNT018	AUTOMATIC TRAIN CONTROL (ATC)	GL Account: WMATA-02-33320-50499160-041-*****-OPR**	
Problem Code: 3079	STATION OVERRUN	Supervisor:	Target Start:
Requested By:		Requestor Phone:	Target Comp:
Chain Mark Start:		Chain Mark End:	Scheduled Start:
Create-Mileage: 544098.0		Complete-Mileage: 544098.0	

Task IDs

Task ID																								
10																								
TRAIN OVERRUN RED SIGNAL																								
AS PER ITC/ENV ENGINEERING PERFORMED SIG3 INSPECTION REQUIREMENTS FOR CLASS 1 RAIL VEHICLES THAT OVERRUN A RED SIGNAL AND FOUND GOOD.																								
-PERFORMED MC OPERATION CHECK FROM THE LEAD CAR AND PASSED THE CHECK.																								
-PERFORMED BRAKE RATE AND FOUND GOOD READING AS LISTED BELOW																								
<table><tr><td>FRONT</td><td>REAR</td><td>FRONT</td><td>REAR</td></tr><tr><td>B5 44</td><td>44</td><td>46</td><td>45</td></tr><tr><td>B4 34</td><td>34</td><td>35</td><td>34</td></tr><tr><td>B1 8</td><td>9</td><td>9</td><td>9</td></tr><tr><td>COAST 0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>EMR 47</td><td>44</td><td>47</td><td>47</td></tr></table>	FRONT	REAR	FRONT	REAR	B5 44	44	46	45	B4 34	34	35	34	B1 8	9	9	9	COAST 0	0	0	0	EMR 47	44	47	47
FRONT	REAR	FRONT	REAR																					
B5 44	44	46	45																					
B4 34	34	35	34																					
B1 8	9	9	9																					
COAST 0	0	0	0																					
EMR 47	44	47	47																					
-VISUALLY INSPECTED WHEELS FOR FLATS AND SPALLING AND FOUND NO FLAT OR SPALLING ON ALL WHEELS.																								
-PERFORMED SATISFACTORY DI AND PASSED DST.																								
Component: 000-300 RAIL CAR; 2K/3K/6K/7K	Work Accomplished: CHECKED	Reason: INCIDENT//ACCIDENT	Status: COMP	Position:	Warranty?: N																			
Actual Labor																								
Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost															
10		01/21/2024	01/21/2024	17:00	19:30	Y	02:30	00:00	\$120.10															
Total Actual Hour/Labor:							02:30	00:00	\$120.10															

WT_plust_woprint.rptdesign

01/22/2024 14:55

Document 9 – CMNT Work Order 18359049, Page 1 of 2

Incident Date: 01/21/2024 Time: 06:49 hours
Final Report – Red Signal Overrun
E24062

Drafted By: SAFE 711 – 03/21/2024
Reviewed By: SAFE 707 – 03/21/2024
Approved By: SAFE 707 – 03/21/2024

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Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
Work Order Details

Page 2 of 2
MX76PROD

Work Order #: 18359049
Type: CM



Status: COMP
01/21/2024 20:53

Work Description: Train 906 overran D99-110 signal in New Carrollton Yard blocking trains in the yard for revenue service. Train operator was removed from service. Gap trains implemented to mitigate customer delays

Job Plan Description:

Related Incidents				
Ticket	Description	Class	Status	Relationship
8725885	Train 906 overran D99-110 signal in New Carrollton Yard blocking trains in the yard for revenue service. Train operator was removed from service. Gap trains implemented to mitigate customer delays.	SR	RESOLVED	ORIGINATOR

Failure Reporting				
Cause	Remedy		Supervisor	Remark Date
2477	NO DEFECT; OPERATOR ERROR	3192 TESTED / INSPECTED		01/21/2024
Remarks: COMPLETED CENV RECOMMENDATIONS WITHOUT ANY FAILURES NOTED. SUCCESSFULLY PASSED A DI.				

WT_plust_woprnt.rptdesign

01/22/2024 14:55

Document 10 - CMNT Work Order 18359049, Page 2 of 2

Incident Date: 01/21/2024 Time: 06:49 hours
Final Report – Red Signal Overrun
E24062

Drafted By: SAFE 711 – 03/21/2024
Reviewed By: SAFE 707 – 03/21/2024
Approved By: SAFE 707 – 03/21/2024

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Track 11 Red Signal Overrun Prevention Strategy

Please refrain from storing more than fourteen (14) rail cars on Track 11. When sixteen (16) cars are stored on track 11 the lead car is adjacent to the signal, which can potentially cause a red signal overrun. If sixteen (16) cars must be stored on Track 11 due to unforeseen circumstances, please ensure personnel boarding the train are aware of the signal location and a lunar is set for train movement. If you have any questions regarding the contents of this notice, please contact a division manager or supervisor.

Please adhere to the following:



Do not store sixteen (16) cars on track 11.



Store fourteen (14) cars or less on track 11.

Thanks for your continued support,
have a safe and wonderful day.



16 Cars
Train adjacent to D99-110 signal



14 Cars
Train behind D99-110 Signal



D99-110 Signal

September 2024

Document 11 – Rail Car Storage Notice

Appendix E – GOTRS Rights

GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM Track Rights Request

Request Summary

Request Number:	202430202300	Track Access:	True
Dates Requested:	10/29/2024 00:30 to: 10/29/2024 04:30	Clear In Ten:	False
Request Status:	Approved	Equipment on Track:	1
Requestor:	[REDACTED]	Allow Piggybacks:	True
Requestor Organization:	TRST/TRACK	In Piggyback:	No
Tag #:		Power Outage:	Supervisory Supervisory Tag Power Outage
Lock Out / Tag Out:		Additional AC:	
Request Title:	D99 Signal-110 Insulated Joint Maintenance		

Location, Work Type and Description

Location:	Yard
Non-Wayside Location Type:	
Request Type:	Emergency
Charge Job Number:	
Contract Number:	
Maximo Work Order:	
Request Group:	No
Location Description:	D99 Signal-110 Insulated Joint Maintenance
Request Description:	Personnel will remove Insulated Joint.
Work Type:	Track Circuit
Meeting Location:	D99 (New carrollton Yard)
PB Meeting Location:	
Tools and Equipment:	Proper PPE and Hand tools
Equipment on Track:	Prime Mover with Flatcar

Date & Time

Start:	10/29/2024 00:30	End:	10/29/2024 04:30
--------	------------------	------	------------------

Contacts

Entered by	[REDACTED]	Requestor	[REDACTED]
Work:	[REDACTED]	Work:	[REDACTED]
Cell:	Home:	Cell:	[REDACTED]
WMATA Manager		Emergency Contact	

As of 01/02/2025 20:06
1 of 2

Document 12 – GOTRS Rights to reposition the insulated joint on track 11, Page 1 of 2

GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202430202300	Track Access:	True
Dates Requested:	10/29/2024 00:30 to: 10/29/2024 04:30	Clear In Ten:	False
Request Status:	Approved	Equipment on Track:	1
Requestor:	[REDACTED]	Allow Piggybacks:	True
Requestor Organization:	TRST/TRACK	In Piggyback:	No
Tag #:		Power Outage:	Supervisory Supervisory Tag Power Outage
Lock Out / Tag Out:		Additional AC:	
Request Title:	D99 Signal-110 Insulated Joint Maintenance		

Folger Moore
fmoore@wmata.com

Maurice Standard
MStandard@wmata.com

Work:

Work:

Cell:

Cell:

Support

SUPPORT GROUP Crew Size

TRST/TRACK 5

ESCORT GROUP Crew Size

COSI/ATCM 4

Request Change History

Date	Event
10/28/2024 16:48	Request was cloned from Request 202429704100.
10/28/2024 17:19	Request status was changed to YardApproved Comment: Approved.
10/28/2024 17:45	Request status was changed to Approved

Request Group

Request Number Description

Piggyback

No active piggybacks found

Close-Out Summary

As of 01/02/2025 20:06
2 of 2

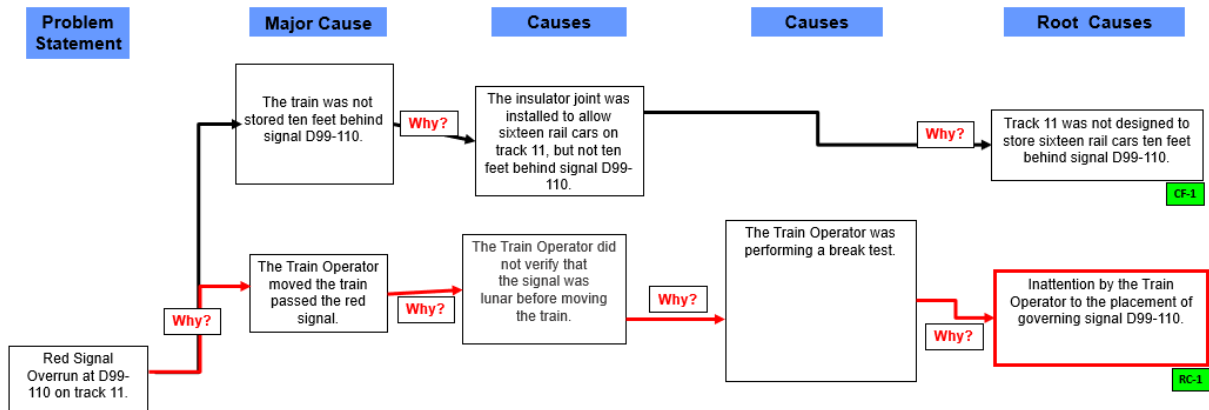
Document 13 - GOTRS Rights to reposition the insulated joint on track 11, Page 2 of 2

Incident Date: 01/21/2024 Time: 06:49 hours
Final Report – Red Signal Overrun
E24062

Drafted By: SAFE 711 – 03/21/2024
Reviewed By: SAFE 707 – 03/21/2024
Approved By: SAFE 707 – 03/21/2024

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Appendix F – Why-Tree Analysis



Root Cause Analysis





Washington Metropolitan Area Transit Authority
Department of Safety (SAFE)
Office of Safety Investigations (OSI)
FINAL REPORT OF INVESTIGATION A&I E24376

Date of Event:	May 13, 2024
Type of Event:	0-8: Red Signal Overrun
Incident Time:	01:18 Hours
Location:	Dulles Rail Yard - Signal N99-G18
Time and How received by SAFE:	01:53 Hours, Safety Information Officer (SIO)
WMSC Notification Time:	02:02 Hours
Responding Safety Officers:	WMATA: None WMSC: None Other: None
Rail Vehicle:	(L7208x7209x7508x7509T)
Injuries:	None
Damage:	None
Emergency Responders:	None
SMS I/A Incident Number:	20240513#116857

Dulles Rail Yard – Red Signal Overrun

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Abbreviations and Acronyms

AIMS	Advance Information Management System
AOM	Assistant Operations Manager
ARS	Audio Recording System
ATCM	Automatic Train Control Maintenance
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CMOR	Office of the Chief Mechanical Officer
COMR	Office of Radio Communications
IIT	Incident Investigation Team
IO	Interlocking Operating
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OAP	Operations Administrative Policy
OM	Operations Manager
ROQT	Rail Operations Quality Training
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
SAFE	Department of Safety
SIO	Safety Information Officer
SMS	Safety Measurement System
SOP	Standard Operating Procedures
SPOTS	System Performance On-Time Summary
VDMS	Vehicle Monitoring and Diagnostic System

WMATA

Washington Metropolitan Area Transit Authority

WMSC

Washington Metrorail Safety Commission

Washington Metropolitan Area Transit Authority Department of Safety – Office of Safety Investigations

Executive Summary

**Note that all times listed are approximate and may contain minor variations due to differences between systems of record. **

On Monday, May 13, 2024, at 01:18 hours, a non-revenue train (L7208x7209x7508x7509T) was performing yard moves in the Dulles Rail Yard when the train overran signal N99-G18 that displayed a red aspect on Dulles Yard lead track 1.

Prior to the incident, the Dulles Interlocking Operator (IO) provided Rail Vehicle Operator (RVO) #1 and RVO #2 instructions to proceed to track #11 and take the open end four (4) rail cars to track 1E. The IO advised RVO #1 that they had a lunar at signal N99-124 and an absolute block no closer than 10 feet of signal N99-G18 red, and hold. The IO informed RVO #1 that their train was double ended by RVO #2. RVO #1 provided 100% repeat back to the IO however failed to hold at the designated location, and overran signal N99-G18 red. After the overrun RVO #1 stopped just short of the signal N99-16.

During the incident, the IO attempted to contact RVO #1 over the radio, but was unsuccessful. The IO was able to contact RVO #2 who was aboard the trailing end of the train at the time of the incident and instructed by the IO to hold the train at signal N99-16.

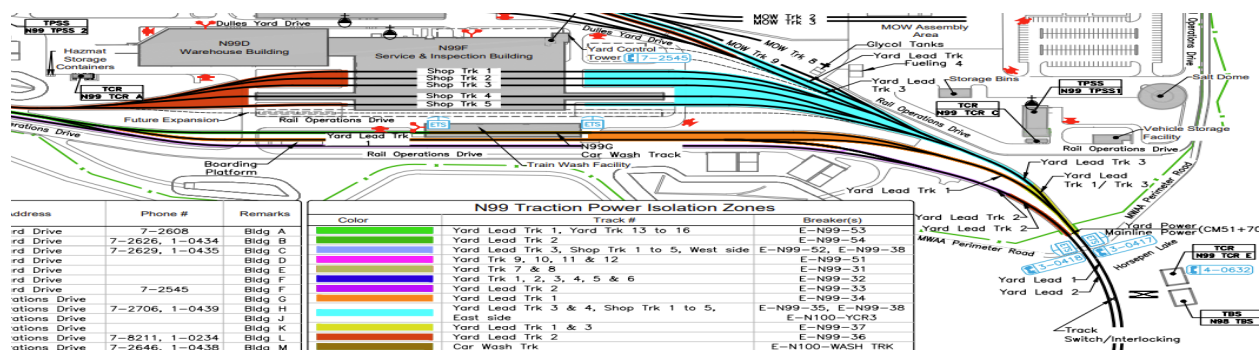
At 01:41 hours, Automatic Train Control Maintenance (ATCM) personnel who were in the yard conducting signal and switch inspections at the time of the incident, were contacted by the IO and informed of the red signal overrun at N99-G18. The IO instructed ATCM personnel to inspect switch 17 for any damage. There was no reported damage to the train. Minor damage was reported to switch 17 which was repaired by ATCM personnel.

The probable cause of the Red Signal Overrun event at Dulles Yard on May 13, 2024, was a lack of situational awareness on behalf of RVO #1, resulting in the overrun of signal N99-G18.

Incident Site

Dulles Rail Yard, signal N99-G18.

Field Sketch/Schematics



The above depiction is not to scale.

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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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

Upon receiving notification of the Red Signal Overrun at the Dulles Rail Yard on May 13, 2024, SAFE dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Physical Site Assessment.
- Formal Interviews – SAFE interviewed three (3) individuals as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individuals:
 - Rail Vehicle Operator #1
 - Rail Vehicle Operator #2
 - Interlocking Operator
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed by personnel present during the event.
- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
 - Rail Vehicle Operator Training Records
 - Rail Vehicle Operator Certifications
 - Rail Vehicle Operator 30-day work history review
 - Metrorail Operating Rulebook (MOR)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Metro Integrated Command and Control (MICC) Incident Report
 - Maximo Data
 - Safety Management System (SMS) Data
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback Radio and Landline OPS N4 YD2.
 - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Vehicle Monitoring and Diagnostic System (VMDS)

Investigation

On Monday, May 13, 2024, at 01:18 hours, a non-revenue train (L7208x7209x7508x7509T), was performing yard moves in the Dulles Rail Yard when the train consist overran signal N99-G18 that displayed a red aspect on Dulles Yard lead track 1.



N99-18 Signal Red
seen from the forward
camera of lead car
7208.

Image 1: Shows signal N99-G18 displaying a red aspect from the forward-facing camera of lead car 7208.

The Audio Recording System (ARS) revealed that at 01:08 hours, the IO granted RVO #1 who was located in the Lead Car 7208 an absolute block from the signal N99-124 lunar to the signal N99-G18 red. The RVO acknowledged the absolute block with repeat back confirmation.



Image 2: Signal N99-G18 displaying a red aspect.

During the incident, the IO attempted to contact RVO #1 over the radio, but was unsuccessful. The IO was able to contact RVO #2 who was aboard the train on the trailing end at the time of the incident and instructed by the IO to hold the train at signal N99-16.



Image 3: Shows the train holding before the N99-G16 signal displaying a red aspect.

At 01:37 hours, the IO reported the incident to the Metro Integrated Command and Communication Center (MICC) Buttons Radio Traffic Controller (RTC).

At 01:41 hours, ATCM personnel in the yard conducting signal and switch inspections at the time of the incident were contacted by the IO and informed of the red signal overrun at signal N99-G18. The IO instructed ATCM personnel to inspect switch 17 for any damages. There was no reported damage to the train. Minor damages were reported to switch 17 which was repaired by ATCM personnel.

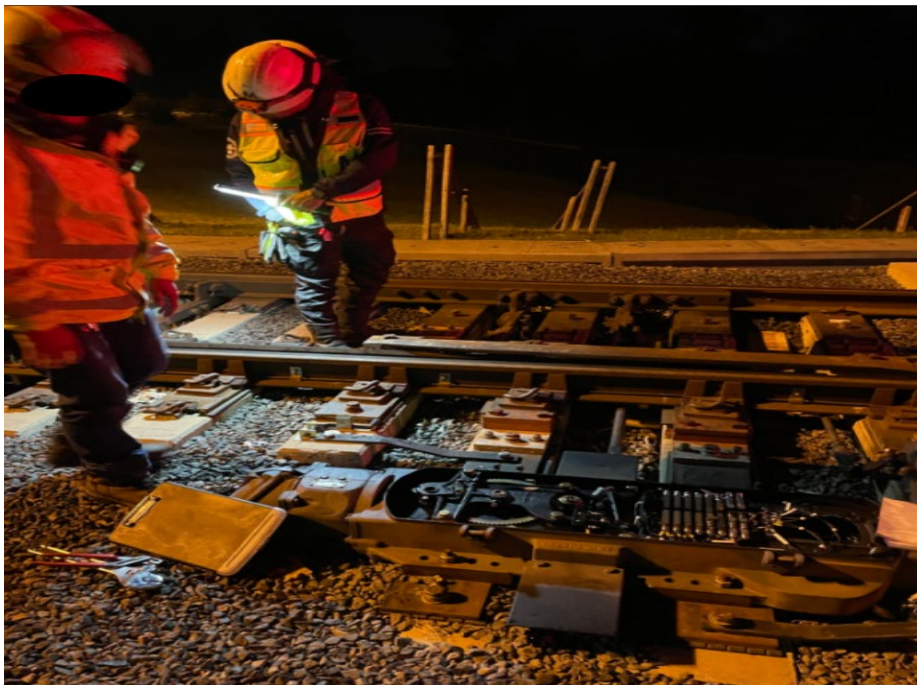


Image 4: Shows ATCM performing repairs on switch 17.

At 01:47 hours, OM advised the Safety Information Officer (SIO) of the Red Signal Overrun event at Dulles Rail Yard.

At 1:54 hours, the OM notified the RTRA Division Superintendent, ATCM personnel, Emergency Response Team (ERT), and SAFE of the Red Signal Overrun incident.

The SIO notified the Safety Director on Call (SDOC) who received the event scene release from the Washington Metropolitan Safety Commission (WMSC) at 02:02 hours.

At 03:47 hours, ATCM personnel cleared the scene and reported minor damage to switch #17 and repairs were performed onsite.

The Interlocking Operator, Train Operator #1, and Train Operator #2 were removed from service and transported for post-incident tests. WMATA's Drug and Alcohol Program determined that all WMATA employees complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

The Office of Radio Communications (COMR) performed a radio test of the Dulles Rail Yard and reported erratic operations with the communications. This was evident during the investigation.

RVO #1 received disciplinary action in accordance with the Disciplinary Administration Program (DAP). RVO #1 received one (1) day of Re-Instruction Training with the Rail Operations Quality Training (ROQT) Department, with emphasis on identifying signal locations within the Dulles Rail Yard and ensuring that the tower has confirmation when signals are passed when operating within all rail yards.

Chronological Event Timeline

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

Time	Description
01:08:09 hours	<u>Interlocking Operator</u> : Instructed Train Operator #1 in Lead Car 7208 to verify the N99-124 signal with an absolute block no closer than 10 feet to the N99-G18 signal red and hold, there's one unit moving ahead. <u>Rail Vehicle Operator #1</u> : No response. [Radio N4 YD2]
01:09:45 hours	<u>Interlocking Operator</u> : Instructed Train Operator #1 to verify the lunar at signal N99-124 with an absolute block no closer than 10 feet to signal N99-G18 red. <u>Rail Vehicle Operator #1</u> : Repeated the correct instructions from the Interlocking Operator. [Radio N4 YD2]
01:18:11 hours	<u>Interlocking Operator</u> : Attempted to contact Train Operator #1. <u>Rail Vehicle Operator #1</u> : No response.
01:20:54 hours	<u>Rail Vehicle Operator #2</u> : Advised they were holding at N99-G16 signal. <u>Interlocking Operator</u> : Acknowledged. [Radio N4 YD2]
01:37:49 hours	<u>Interlocking Operator</u> : Advised the Buttons RTC of the Red Signal Overrun. [OPS4 Phone]

01:40:23 hours	<u>ATCM</u> : Requested permission to enter the roadway and inspect switch 17. <u>Interlocking Operator</u> : Acknowledged. [Radio N4 YD2]
01:41:00 hours	<u>Buttons RTC</u> : Advised AOM of the incident. [Phone OPS 4]
01:42:09 hours	<u>AOM</u> : Advised the OM of the incident. [MICC Phone]
01:47:07 hours	<u>OM</u> : Advised the SIO of the Red Signal Overrun. [MICC Phone]
01:54:15 hours	<u>OM</u> : Advised the Dulles Superintendent of the Red Signal Overrun, ERT and SAFE of the incident. [MICC Phone]
2:02:30 hours	<u>SIO</u> : Received the Event Scene Release [Phone, SIO]
03:47:25 hours	ATCM completed repairs to switch 17 and cleared the scene. [Radio, N4 YD2]

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

Automatic Train Control Maintenance (ATCM)

ATCM responded to the scene minor damages were reported to switch 17 which was repaired by ATCM personnel.

Office of Rail Transportation (RTRA)

Adopted from RTRA report:

An investigation into the incident was conducted by Dulles Division Management, which was based on the RVO #1 incident report, audio, photos, and video recordings from WMATA, and an interview conducted by management. The investigation determined the following:

RVO #1 was operating lead car 7208 and was given an absolute block from N99-124 to N99-G18 signal red and to hold. The IO gave the instructions to RVO #1 over the radio. Following the transmission, RVO #1 confirmed receipt by providing a 100% repeat back of those instructions. RVO #1 admitted not paying full attention before overrunning N99-G18 red, which violates MOR 3.3.

RVO #1 received a 5-day suspension without pay and refresher training with ROQT, which began on 6/08 and concluded on 6/14. The return to workday was 6/15.

Interview Findings

As part of the investigation launched into the event, SAFE interviewed three (3) people. The interviews 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.

Rail Vehicle Operator #1

- The Rail Vehicle Operator stated they were given an absolute block up to the signal N99-18 red.
- The Rail Vehicle Operator stated they did not see the signal.
- The Rail Vehicle Operator stated they were not aware if the signal was illuminated.
- The Rail Vehicle Operator stated they were not familiar with the location of the signal.
- The Rail Vehicle Operator stated they were notified of the Red Signal Overrun via the train's inter-car buzzer.

Rail Vehicle Operator #2

- Rail Vehicle Operator #2 stated they sounded the yard horn to alert Rail Vehicle Operator #1 that they were passing the N99-G18 signal.
- Rail Vehicle Operator #2 stated they were notified that Rail Vehicle Operator #1 overran the N99-G18 signal.

Interlocking Operator

- The Interlocking Operator stated they granted the Rail Vehicle Operator #1 an absolute block to the signal N99-G18 red and hold.
- The Interlocking Operator stated the Rail Vehicle Operator gave 100% repeat back of the instructions.
- The Interlocking Operator stated they were not familiar with the Rail Vehicle Operator #1.

Weather

On May 13, 2024, at the time of the incident, NOAA recorded the temperature as 53°F, with clear skies, and winds of 3 MPH. The weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Dulles, VA.

Related Rules and Procedures

Metro Operating Rulebook (MOR)

1.8.8 - Employees shall not operate any vehicle in a reckless or unsafe manner.

3.1.2 - Rail Traffic Controller or Interlocking Operator shall give permission to pass a red signal after the switches have been clamped for the required move. Once this has been verified, the Rail Vehicle Operator will be given permission to pass the red signal at a speed no greater than five (5) mph.

3.3 - Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

3.4.2 - If a rail vehicle runs through an improperly aligned track switch, the Rail Vehicle Operator shall stop the vehicle immediately, and report the occurrence to the Rail Traffic Controller or the Interlocking Operator. All parties shall treat the situation as if the vehicle has derailed, and the vehicle shall not be moved. Subsequent movement of the affected rail vehicle shall not be undertaken until investigated and determined to be safe by authorized personnel.

Human Factors

Evidence of Fatigue

Rail Vehicle Operator #1

SAFE examined signs and symptoms of fatigue that may have been present at the time of the incident. No video of the involved person was available to ascertain whether signs of fatigue were present. The Rail Vehicle Operator reported feeling fully alert at the time of the incident. The Rail Vehicle Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Rail Vehicle Operator #2

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

Interlocking Operator

SAFE examined signs and symptoms of fatigue that may have been present at the time of the incident. No video of the involved person was available to ascertain whether signs of fatigue were present. The Interlocking Operator reported feeling fully alert at the time of the incident. The Interlocking Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

Rail Vehicle Operator #1

SAFE evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Rail Vehicle Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Rail Vehicle Operator worked the overnight shift in the days leading up to the incident. The Rail Vehicle Operator was awake for three hours and forty-eight minutes at the time of the incident. The Rail Vehicle Operator reported six hours of sleep in the 24 hours preceding the incident. The off-duty period was seventeen hours, which provided an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The Rail Vehicle Operator reported no issues with sleep. The Rail Vehicle Operator worked the overnight shift in the days leading up to the incident.

Rail Vehicle Operator #2

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

Interlocking Operator

SAFE evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Interlocking Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Interlocking Operator worked the overnight shift in the days leading up to the incident. The Interlocking Operator was awake for six hours and five minutes at the time of the incident. The Interlocking Operator reported eight hours of sleep in the 24 hours preceding the incident. The off-duty period was nineteen hours, which provided an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The Interlocking Operator reported no issues with sleep. The Interlocking Operator worked the overnight shift in the days leading up to the incident.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that all employees complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Office of the Chief Mechanical Officer, Incident Investigation Team (CMOR/IIT)

The Incident Investigation Team (IIT) has completed the analysis of the data collected from cars (L7208, 7209, 7508, 7509T) involved in a Red Signal Overrun at Dulles Rail Yard. We will refer to cars L7208, 7209, 7508, and 7509 as "trains" in this report. Based on the data these cars performed as designed and no faults or mechanical defects were present at the time of the incident that could have contributed to its cause. Based on the data and available video, the train stopped near the carwash facility at Dulles Rail Yard. Shortly after the train started to move towards signal 18. The train overran signal N99-G18 red and continued to move towards signal N99-16. The train stopped before signal N99-16. The train likely split switch 61 after overrunning signal N99-G18. The Master Controller was and remained in the coast 5 seconds before, during, and 5 seconds after the red signal overrun.

Time	Description of Events	Train Speed	Master Controller
1:13:52	Train stopped near the carwash.	0 mph.	B5
1:13:55	Train started moving without stopping following this trajectory (orange dotted line).	1 mph.	P5
1:15:30	Master Controller was in Coast.	11 mph.	Coast
1:15:35	Train Overran Signal 18	10 mph.	Coast
1:15:40	Master Controller was in Coast.	10 mph.	Coast
1:16:22	Train stopped before signal 16.	0 mph.	B5

Table 1: Shows a timeline of events.

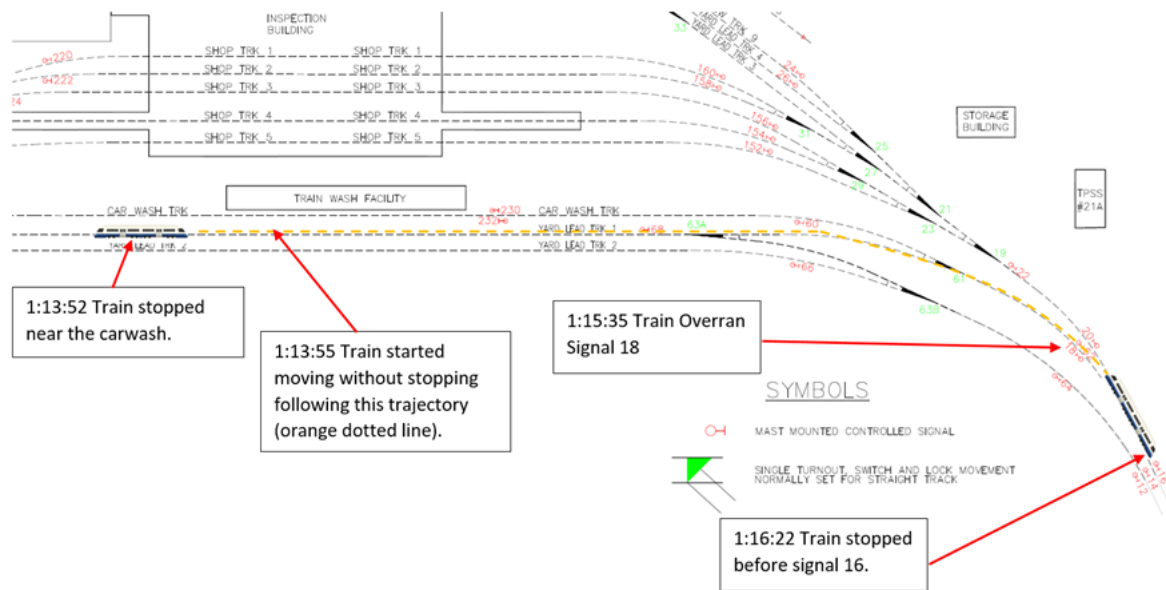
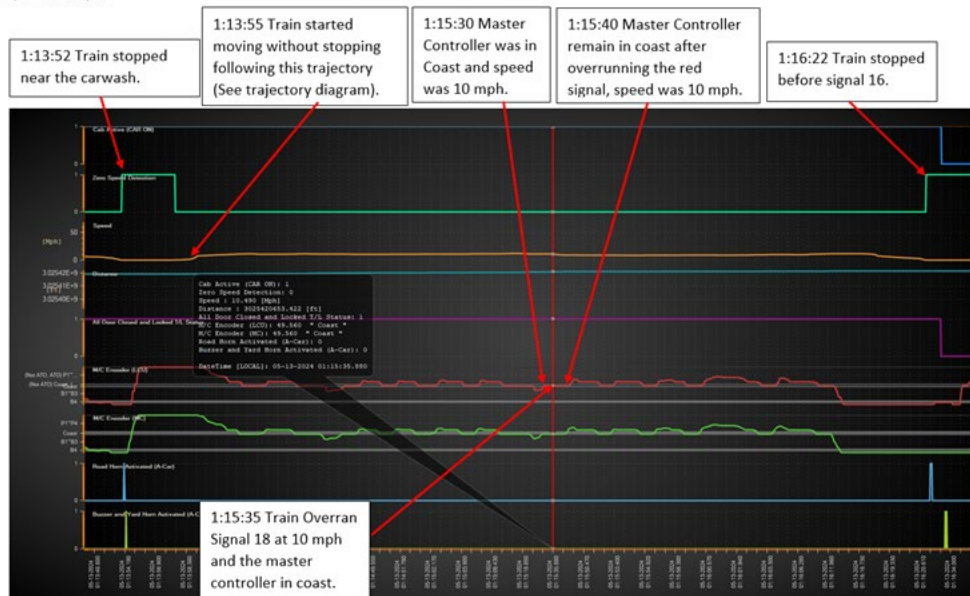


Diagram 1: Shows the train's trajectory.



Graph 1: Shows data analysis

Findings

- The non-revenue train contained two occupants, RVO #1, and RVO #2.
- RVO #1 stated they were unfamiliar with the layout and signal placement at Dulles Yard.
- The IO granted RVO #1 (L7208) an absolute block from signal N99-124 (Lunar) to signal N99-G18 red.
- RVO #1 stated they did not see the signal displaying a red aspect.
- RVO #1 overran signal N99-G18 and stopped at signal N99-16 signal.
- The IO attempted to reach RVO #1 via the radio with no response.
- RVO #1 stated that RVO #2 notified them of the Red Signal Overrun via the train's inter-car buzzer.
- The IO instructed RVO #2 to stop the train and hold at the signal N99-16.
- RVO #1 received Re-Instruction Training with ROQT.

Immediate Mitigation to Prevent Recurrence

- ATCM inspected and repaired Switch #17.
- Rail Vehicle Operator #1 was removed from service.
- Rail Vehicle Operator #2 was removed from service.
- The Interlocking Operator was removed from service.

Probable Cause Statement

The probable cause of the Red Signal Overrun event at Dulles Yard on May 13, 2024, was a lack of situational awareness on behalf of Rail Vehicle Operator #1, resulting in the overrun of the N99-G18 signal.

Recommended Corrective Actions

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
116857_SAFE CAPS_RTRA_001	Rail Vehicle Operator #1 will be referred to ROQT for re-instructional purposes and will follow the DAP policy for discipline.	RTRA	Completed
116857_SAFE CAPS_RTRA_002	Rail Vehicle Operator #1 received disciplinary action in accordance with the Disciplinary Administration Program (DAP).	RTRA	Completed

Appendices

Appendix A – Interview Summaries

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.

RTRA

Rail Vehicle Operator #1

Rail Vehicle Operator #1 has been employed with the Authority since October 23, 2023, and certified as a Rail Vehicle Operator on April 2, 2024. There have been no other safety incidents since their certification. The RVO holds a Roadway Worker Protection (RWP) 2 that expires on October 23, 2024.

Rail Vehicle Operator #1 stated the instructions they got from the Interlocking Operator was to double-end with Rail Vehicle Operator #2, and they had an absolute block up to signal N99-G18 and had a lunar lined up from the bump post, and they came around the side of the yard. As they came across the side of the car wash on their left-hand side, they noticed a prime mover moving and were looking for the signal N99-G18 but did not see the red signal or a lunar. Rail Vehicle Operator #1 stated that they proceeded to continue once the prime mover was out of their way, and then Rail Vehicle Operator #2 hit the intercar buzzer. When they had cleared the interlocking, they stopped the train, passed the signal N99-16 keyed down and proceeded to walk through the other end of the train.

The Rail Vehicle Operator #1 stated it was dark and they were not familiar with the signal N99-G18 was located when they looked to their left and saw a prime mover moving when the prime mover proceeded to move in front of them on the same track they began to slow down. The Rail Vehicle Operator #1 stated they could not determine whether the signal was red or lunar by the time they moved through the interlocking, and they cleared the signal to reverse ends. They were alerted via the intercar buzzer, and then they stopped the train.

The Rail Vehicle Operator #1 stated, they were in the operator's cab alone.

Rail Vehicle Operator #1 stated they gained knowledge of the yard when they became certified and received their manifest. They also stated they knew some of the signals.

Rail Vehicle Operator #1 stated they are familiar with where signal N99-G18 is located now.

Interlocking Operator

The Interlocking Operator has been employed with the Authority since August 23, 2010, and has been an Interlocking Operator since December 4, 2022. They have had no previous safety incidents in the past two years. The Interlocking Operator holds a Roadway Worker Protection (RWP) 2 that expires on August 22, 2024.

During the interview, the Interlocking Operator stated, they were moving three high rail units out to the mainline for scheduled work. The Interlocking Operator stated they were in the process of moving the last unit from signal N99-92, and they had the unit clear to signal N99-46 red and to hold as the unit was holding at that position, another unit was leaving out, going towards mainline at signal N98-B16. The Interlocking Operator stated they gave the Rail Vehicle Operator


#1 an instruction to uncouple the open end of 4 cars on track 13 and to ensure that the barriers were detached and stowed. The Interlocking Operator stated that Rail Vehicle Operator #1 repeated back the instructions and went to uncouple when Rail Vehicle Operator #2 stated that they could double-end the train. The Interlocking Operator stated both Rail Vehicle Operators were holding at the signal N99-124 red and the uncoupling had been completed. The Interlocking Operator stated they copied the uncoupling and the barriers had been detached and stowed. The Interlocking Operator stated that the last high rail unit was holding behind signal N99-46 red, and they gave the Rail Vehicle Operator #1 permission to move. The Interlocking Operator stated they gave the High Rail Vehicle permission to verify the lunar at signal N99-46 with an absolute block to signal N99-26 red and to hold, and when the unit cleared, they extended the block to signal N99-56. The Interlocking Operator stated they instructed Rail Vehicle Operator #1 to verify the lunar at signal N99-124 and they would have an absolute block no closer than 10 feet to signal N99-G18 red and hold and to use caution because they one unit moving ahead of your location. The Interlocking Operator stated that Rail Vehicle Operator #1 paused and repeated a different signal to them, and then they copied and repeated the correct instructions from the Interlocking Operator. The Interlocking Operator stated as units began to move away from signal N99-124 and as they were coming around the loop, a process that takes between 6 to 7 minutes they were able to see the unit approaching the signal when Rail Vehicle Operator #1 passed the signal going out towards mainline. The Interlocking Operator stated they saw a red track circuit occupancy when Rail Vehicle Operator #1 stated they were holding at N99-16 red. The Interlocking Operator stated they advised ATC and the MICC of the Red Signal Overrun.

The Interlocking Operator stated that they instructed Rail Vehicle Operator #1 to stop a signal N99-G18 which was repeated back by Rail Vehicle Operator #1.

The Interlocking Operator stated that Rail Vehicle Operator #1 was a fairly new operator with about one month of experience working alone in the yard.

The Interlocking Operator stated that Rail Vehicle Operator #2 was directed to double-end the train with Rail Vehicle Operator #1.

Appendix B – Automatic Train Control Engineering (ATCE)

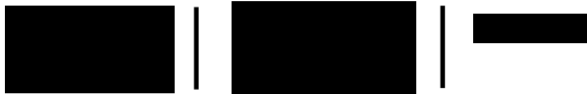
	Washington Metropolitan Area Transit Authority ENGA-ATCE			Request: [REDACTED]			
				Date: 05/16/24			
				From: [REDACTED]			
				To: [REDACTED]			
Location: N99		Time: - 01:00-02:00		Date of incident: 05/16/2024		Train No: L7208, 7209, 7508, 7509	
Description: Red Signal Overrun Signal N99-18				Control of interlocking: Yard Interlocking Operator			
Initial state as of: 01: 00: 00							
Name		State	Auto	Name		State	Auto
No Data Available							
Time	Location	Status/ Control	Frame-Word-Bit	Description		Comments	
No Data Available							

Circuit Power Failure: Yes ☐ No ☒ Processor Failure: Yes ☐ No ☒ Power Transfer: Yes ☐ No ☒

Conclusion:

No Data Available to provide conclusion. Data logger for signal 16 and signal 18 is out of Service. N99 Yard does not have Auto Signals. Train routes are set at the discretion of Yard Tower Controller.

Distribution:



Original
05/20/2024

Incident Report 0.0
Page 1 of 1
Incident Analysis Report-N99-0.0-052024

Document 1: ATCE Incident Analysis.

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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Appendix C – Office of Rail Transportation (RTRA)

Office of Rail Transportation: Managerial Incident Investigation Report	
Incident Status: PRELIMINARY	
GENERAL INCIDENT INFORMATION	
Incident Type:	Red Signal Overrun
Incident Date:	Monday, May 13, 2024
Incident Time:	1:14am
Location:	N99 Yard Loop signal N99-18
Delay (Minutes):	None
Vehicles Involved:	7208x7209x7508x7509
First Reported By:	
BRIEF DESCRIPTION:	
Interlocking Operator [REDACTED] gave Train Operators [REDACTED] and [REDACTED] instructions to proceed to track #11 and take the open four (4) cars to 1E. [REDACTED] instructed Operator [REDACTED] that with a lunar at N99-124 he had a block to N99-18 RED and hold his location and his train would be double ended by Train Operator [REDACTED]. Train Operator gave a 100% repeat back to Interlocking Operator [REDACTED] but failed hold his location at N99-18.	
Key Employees Involved & Employee Statements:	
Train Operator [REDACTED] states that Interlocking Operator [REDACTED] gave him permission to proceed to N99-18 red hold his location. Train Operator [REDACTED] states that his Inattention caused him to overrun the signal.	
Office of Rail Transportation: Managerial Incident Investigation Report	Page 1 of 3

Document 2: Office of Transportation: Managerial Incident Investigation Report.

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

INVESTIGATION REPORT		DIVISION Dulles		GARAGE N/A		FILE NO.					
DATE OF OCCURRENCE May 13, 2024		TIME 01:14AM		VEHICLE NO. 7208-7209-7508-7509		RUN # 530001		SHIFT AM		BLOCK NO.	
LINE Silver		LOCATION Dulles Rail Yard				DESTINATION Dulles Rail Yard					
TYPE OF CASE MOR 1.8.8, 3.12, 3.3, 3.4.2,						REPORTED BY Interlocking Operator [REDACTED]					
NAME OF EMPLOYEE INVOLVED [REDACTED]						EMPLOYEE NO. [REDACTED]					
NATURE OF OCCURRENCE: Rail Signal Overrun (Yard)											
1. SUMMARY OF INVESTIGATION 2. STATEMENT OF EMPLOYEE 3. SUMMARY OF VIOLATION. 4. ANALYSIS OF FACTS / EVIDENCE IN SUPPORT OF RULE VIOLATION 5. ASSESSMENT OF DISCIPLINE											
1. Train Operator [REDACTED], an investigation into this incident was conducted using all incident reports, interviews, and audio recordings. The following was revealed: <ul style="list-style-type: none">On Monday, May 13, 2024, you worked DUL-530001 (Yard)Interlocking Operator [REDACTED] gave Train Operators [REDACTED] and [REDACTED] instructions to proceed to track #11 and take the open four (4) cars to 1E.Interlocking Operator [REDACTED] instructed Operator [REDACTED] that with a lunar at N99-124, he had a block to N99-18 RED and to hold his location and his train would be double ended by Train Operator [REDACTED]Train Operator [REDACTED] you gave a 100% repeat back, a lunar at N99-124 he had a block to N99-18 RED and hold.Interlocking Operator asked someone for a landline, then asks 7208 (lead car) what is their location.Operator [REDACTED] states she was ready at N99-16.											
2. Operator [REDACTED] you stated in your incident report, "Went pass the signal."											
ACTION TAKEN: 5-Day Suspension without Pay and Refresher Training with ROQT											
DATE, 6/7/2024		ACTION TAKEN BY: [REDACTED]						TITLE Assist Superintendent			
EMPLOYEE SIGNATURE [REDACTED]											
I certify that the above has been called to my attention, and I understand that my signature does not imply admission of guilt											
EMPLOYEE MAY WRITE A STATEMENT IN THIS SPACE											

4.21 (5/79)

Orig: Office of Bus Service (BUSV) or RAIL

Yellow: Employee

068 00 0736 RI

Green: Employee Division File

Pink: Union

Gold: RTRA Admin

Document 3: RTRA Investigation Report. Page 1 of 3

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Investigation Report Continuation Sheet

(3) Based on the above investigation, you have committed the following violation:

MOR 1.8.8 Employees shall not operate any vehicle in a reckless or unsafe manner.

MOR 3.1.2 – Rail Traffic Controllers or Interlocking Operators shall give permission to pass a red signal after the switches have been clamped for the required move. Once this has been verified, the Rail Vehicle Operator will be given permission to pass the red signal at a speed no greater than five (5) mph.

MOR 3.3 – Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

MOR 3.4.2 – If a rail vehicle runs through an improperly aligned track switch, the Rail Vehicle Operator shall stop the vehicle immediately, and report the occurrence to the Rail Traffic Controller or the Interlocking Operator. All parties shall treat the situation as if the vehicle has derailed, and the vehicle shall not be moved. Subsequently, movement of the affected rail vehicle shall not be undertaken until investigated and determined to be safe by authorized personnel.

(4) Mr. [REDACTED], an investigation into this incident was conducted by Dulles Division Management, which was based on your incident report, audio, photos, and video recording from WMATA, and an interview conducted by management. The investigation determined the following:

You were operating lead car 7208 and were given an absolute block from N99-124 to N99-18 signal red and to hold. The instructions were given to you by Interlocking Operator [REDACTED] over the radio. Following the transmission, you confirmed receipt by providing a 100% repeat back of those instructions. You were interviewed by Superintendent [REDACTED] and admitted to not paying full attention prior to overrunning N99-18 red, which is a clear violation of MOR 3.3.

Document 4: RTRA Investigation Report. Page 2 of 3

(5) Train Operator [REDACTED], in determining the appropriate disciplinary penalty for your actions, the Division considered many factors. The records of WMATA indicate you have been an employee since October 23, 2023. You have been a Rail Vehicle Operator since April 2, 2024. Since becoming a Rail Vehicle Operator, you have no other safety incidents since your certification.

I have considered the nature and circumstances of this serious Policy/Rule violation and have taken your prior record into account. Based on the nature of this violation, I do not find any mitigating factors to consider that would have an impact on my decision of disciplinary action. After reviewing all documentation associated with this investigation, it is determined the seriousness of this violation committed by you is sufficient cause for a **Five (5) day suspension without pay and Refresher Training with ROQT.** Operator [REDACTED], your suspension will begin on June 8, 2024, and will conclude on xxx, June 14, 2024. You are expected to return to work at your regular scheduled time on June 15, 2024. Note: You have already completed your retraining in reference to the rules and procedures violated during this incident. You are hereby informed that future safety violations will result in progressive discipline which may include your termination of employment from the Washington Metropolitan Area Transit Authority.

Train Operator [REDACTED] you are advised that should you elect to use earned vacation leave to protect your earning levels to the extent possible, such voluntary election will preclude you from filing a grievance pursuant to Section 104 (A&B) as it pertains to the violation finding and disciplinary actions taken.

Voluntary election to use earned leave Yes ___ or No X (Indicate Choice) and initial [REDACTED]

EMPLOYEE NAME: [REDACTED]

EMPLOYEE #: [REDACTED]

DATE: 6/7/24

A copy will be placed in your employee file.

Document 5: RTRA Investigation Report. Page 3 of 3

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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Rail Training Request Form

Use this Form for Reinstruction and Return to Duty

Please Print/Type all Information

Employee Name		Employee Number	Division	Assigned Days	Last Day Worked
[REDACTED]		[REDACTED]	N99	[REDACTED]	5/13/2024
RTD Date	Incident Date		Incident Type		
5/16/2024	5/13/2024		Red Signal overrun		
MOR Rule/Violation		Post Incident (Y/N)	Date Cleared Medical		
MOR 3.3		Y	5/15/2024		
Last MICC/Train Certification Date			RWP Expiration Date		
1/29/2024			10/31/2024		
Requestor's (Name):					
[REDACTED]					
Brief Synopsis of Incident or Reason Out					
Dulles Division Management, is requesting refresher training for Train Operator [REDACTED] who overran N99-18 signal RED, after repeating Dulles Tower instructions to hold at N99-18 Signal Red.					

Area Below for Rail Training Personnel Use Only

Date Reported: 5/23/2024	Number of Days Trained 1	Location of Training F99
<u>Instruction Provided:</u> [REDACTED] was reinstructed on the importance of Red Signal Overruns in the yard and on mainline. [REDACTED] was given several Lessons Learned documents on Red Signal Overruns and also I informed him to make sure he can identify where all of the signals are located within the yard and to always get confirmation from the tower when he is clear a signal. [REDACTED] understands that a Red Signal Overrun can lead to a collision or derailment in the yard or on mainline.		
Trainee: [REDACTED]	Signature: [REDACTED]	Date: 5/23/2024
Instructor: [REDACTED]	Signature: [REDACTED]	Date: 5/23/2024
Rail Training Manager: [REDACTED]	Signature: [REDACTED]	Date: 5/29/2024
Trainee's Manager:	Signature: [REDACTED]	Date: Click or tap to [REDACTED] 06/11/2024

This form must be emailed to [REDACTED], immediately upon employees' notification to report to Rail Training.

*Insert N/A to all non-applicable fields

Revision 2 February 14, 2024

Document 6: Rail Training Request Form.

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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Post Incident Testing & Employee History:

Train Operator [REDACTED] was transported for post incident testing, these results are unknown at this time.

Train Operator has been employed with the Authority since October 23, 2023, and certified as a Train Operator April 2, 2024. He has no other safety incidents since his certification.

Train Operator [REDACTED] was transported for post incident testing, these results are unknown at this time.

Train Operator [REDACTED] has been employed with the Authority since October 24, 2008, a Train Operator since January 3, 2015. She has had no previous safety incidents in the past two years.

Interlocking Operator [REDACTED] was transported for post incident testing, these results are unknown at this time.

Interlocking Operator [REDACTED] has been employed with the Authority since August 23, 2010, and an Interlocking Operator since December 4, 2022. He has had no previous safety incidents in the past two years.

SIGNIFICANT INCIDENT TIMELINE:

1:41AM Interlocking Operator [REDACTED] contacted ATC [REDACTED] regarding this incident.

1:54AM Rail 1 (MICC) notified [REDACTED] that there was a report of a red signal overrun in N99 yard at 1:14AM at N99-18 signal. RTRA/RSTO, ATC, ERT, and SAFE were contacted to conduct investigations.

2:06AM Interlocking Operator [REDACTED] notified [REDACTED] of the red signal incident in the Dulles Yard. The Operators aboard the incident train were instructed to hold their location until further notice.

3:47AM ATC [REDACTED] cleared the scene there was minimal damage to the switch and was repaired.

SMS #20240513-116857 for this incident.

SIGNIFICANT FINDINGS & PENDING ISSUES:

Operator [REDACTED] admits to not paying full attention and overran N99-18 signal red.



**Washington Metropolitan Area Transit
Authority**

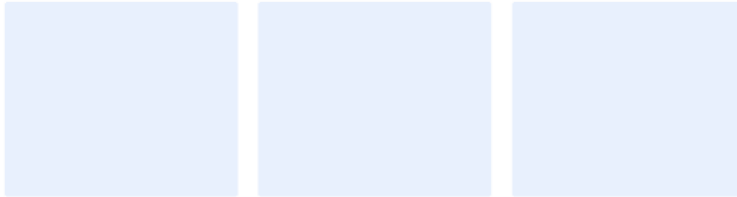
Office of Rail Transportation: Managerial Incident Investigation Report



CORRECTIVE ACTIONS:

Provide any employee corrective actions administered and/or any actions taken to rectify the adverse incident condition. Identify recurring incidents and provide feedback; identify methods to prevent recurrence.

INCIDENT PHOTOS: ATTACH ANY SIGNIFICANT PHOTOS BASED ON THE INITIAL INCIDENT INVESTIGATION.



Report Prepared
by: _____

5/13/2024

Report Reviewed
by: _____

Document 8: Office of Transportation: Managerial Incident Investigation Report. Page 2 of 2.

Lessons Learned

*Looking back,
to effectively move forward*

June 11, 2024
Number: RTRA-303-16-00

Red Signal Overrun in the Yard

INCIDENT SUMMARY

On Sunday, May 12, 2024, at 5:54 pm, the Interlocking Operator at Shady Grove Yard gave a Train Operator an absolute block no closer than 10 ft of A99-86 signal red, clearing A99-90 and to reverse ends. The Train Operator exceeded the absolute block, moving the consist past signal A99-86.

On Monday, May 13, 2024, at 1:18 am, the Interlocking Operator at Dulles Yard instructed a Train Operator to proceed to Track 11. The Operator was given an absolute block to N99-18 signal red and was instructed to hold at that location. The Train Operator failed to hold at the location, moving the consist past signal N99-18.

In both incidents, the Train Operators acknowledged and repeated their instructions.

ROOT CAUSE

There was a lack of situational awareness and focus by both Train Operators who failed to stop at the specified locations and did not follow established procedures.

MOR RULES INVOLVED / VIOLATED

3.3 Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

3.4.2 If a rail vehicle runs through an improperly aligned track switch, the Rail Vehicle Operator shall stop the vehicle immediately, and report the occurrence to the Rail Traffic Controller or the Interlocking Operator. All parties shall treat the situation as if the vehicle has derailed, and the vehicle shall not be moved. Subsequent movement of the affected rail vehicle shall not be undertaken until investigated and determined to be safe by authorized personnel.

12.4.3 Personnel shall not take any action until they are positive that all radio transmissions or receptions are heard, fully understood, and acknowledged. Individual radio transmissions shall, always, be repeated by the receiver so the transmitter can confirm the message was received completely and by the intended receiver.

What happened...	What should have happened...
The Train Operators in both incidents failed to hold their train at the signal as instructed.	The Train Operators in both incidents should have stopped their trains within 10 feet of the red signal and make contact with the Interlocking Operator.

The Train Operators in both incidents repeated their absolute blocks back to the Interlocking Operator prior to moving their trains, however lost situational awareness and exceeded the block.

The Train Operators in both incidents should have remained vigilant while making the yard move for the end of their block/signal.

RECOMMENDATIONS

- ✓ Emphasize that all operational personnel abide by MOR 3.3, 3.4.2 and 12.4.3.
- ✓ Always follow Rules/Procedures outlined in WMATA's MOR.
- ✓ Ask for support or ask additional questions if you are unfamiliar with a yard or the move being requested.

Appendix D – Certifications

M metro		TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION		RTRA OFFICE OF RAIL REVENUE	
Name:	[REDACTED]	Emp.No:	[REDACTED]	Division:	Rail Training
				Date:	04-02-2024
Reason for Certification: <i>Please place a check in an area below.</i>					
<input checked="" type="checkbox"/> Certification: Student <input type="checkbox"/> Pre-certification: Student <input type="checkbox"/> Division Request <input type="checkbox"/> Re-Certification <input type="checkbox"/> Return to Duty <input type="checkbox"/> Other _____					
Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MOR version #: 1st	81 %	01-29-2024	MOR	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TVOIM/TOIM 1st	84 %	01-29-2024	Perm/Temp/Special Orders	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Supervisor Combination	%		Troubleshooting Guide	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Practical attempt #: 1st	QL- 1	04-02-2024	Flashlight	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Safety Vest	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Footwear	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Identification (One Badge, RWP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments					
Signature:	[REDACTED]			Date:	
Employee:	[REDACTED]			4/2/24	
Examiner:	[REDACTED]			4-2-2024	

RTRA-906-01-00

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 1

Document 10: RVO #1 First Attempt Certification, Page 1 of 2

Incident Date: 5/13/2024 Time: 01:18 hours
 Final Report – Red Signal Overrun
 E24376

Drafted By: SAFE 706 – 07/01/2024
 Reviewed By: SAFE 702 - 07/08/2024
 Approved By: SAFE 707 – 07/12/2024

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CATEGORIES / SUBCATEGORIES		QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
I. Preparation for Service		QL 1	Cars Used: 7552 7553 7687 7686
1. Exterior Inspection	1		(7552) Barriers (7553) BCO (7687) Rotary Drum
2. Interior Inspection - Trailing Cab	1		(7552) Horn C/O
3. Interior Inspection - Each Car	1		(7687) Door valance
4. Interior Inspection - Oper. Cab	1		(7686) Tail/Marker C/B
5. Rolling Test / Rolling Brake Test	1		
			Time Allotted: 35:00/Actual Time: 24:51
II. Mainline Operation		QL 1	
6. Communications	1		
7. Door Oper. & Station Stopping	1		
8. Use of Horn	1		
9. Speed Adherence/Manual Oper.	1		
10. Turn Back Moves	1		Location: Naylor Rd Time Allotted: 02:00 /Actual Time :49
11. Manual Route Selection	1		Location: F11 02
12. EV Shutoff	1		Time Allotted: 00:30 (1:00) /Actual Time: 00: 08
III. Yard Operation		QL 1	
13. Communications	1		
14. Yard Movements	1		
15. Coupling	1		Time Allotted: 08:00 (12)/Actual Time: 5:54 Cars Used: 7387+7373
16. Uncoupling	1		Time Allotted: 05:00 (7.5)/Actual Time: 4:26 Cars Used: 7372+7552
17. Isolation (Self-Recovery)	1		Time Allotted: 15:00 (22.5)/Actual Time:12:07 Cars Used: 7372/7552
18. Manual Switch Operation	1		101 (F99)
IV. Miscellaneous		QL 1	
19. Recovery Train Operation	1		Time Allotted: 12:00 (18)/Actual Time:10:22 Cars Used: 7386 7387 7373 7372+7552 75537687 7686
Troubleshooting			Cars Used: 7386 7387 7373 7372 7552 75537687 7686
	1		(7387) Friction Brake C/B Belly (Reset) 3:56
	1		(7386) Car Isolation Lead Car 00:47

Document 11: RVO #1 First Attempt Certification, Page 2 of 2

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION			
Name: [REDACTED]	Emp. No: [REDACTED]	Division: [REDACTED]	Date: 2-3-2023
Reason for Certification: Please place a check in an area below			
<input type="checkbox"/> Certification: Student <input type="checkbox"/> Pre-certification: Student <input type="checkbox"/> Division Request <input checked="" type="checkbox"/> Re-Certification <input type="checkbox"/> Return to Duty <input type="checkbox"/> Other			
Exam Administered	Score	Date Taken	Equipment (current/working condition)
MSRPH version #	87 %	2-3-2023	MSRPH
TVOIM/TDIM	87 %	2-3-2023	Perms/Temp/Special Orders
Supervisor Combination	%		Troubleshooting Guide
Practical attempt # 1	QL- 1	2-3-2023	Flashlight
			Safety Vest
			Footwear
			Identification (One Badge, RWP)
Comments			
Signatures:			
Employee:	[REDACTED]	Date:	2-3-2023
Examiner:	[REDACTED]	Date:	2-3-2023

Document 12: RVO #2 First Attempt Certification, Page 1 of 2

Incident Date: 5/13/2024 Time: 01:18 hours
 Final Report – Red Signal Overrun
 E24376

Drafted By: SAFE 706 – 07/01/2024
 Reviewed By: SAFE 702 - 07/08/2024
 Approved By: SAFE 707 – 07/12/2024

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
I. Preparation for Service		
1. Exterior Inspection	1	Cars Used: 7692-7693X7611-7610X7574-7575X7541-7540
2. Interior Inspection - Trailing Cab	1	BCCO #7575 Rotary Drum #7540 Loose Barrier #7574
3. Interior Inspection - Each Car	1	Emergency Evacuation Board missing #7574
4. Interior Inspection - Oper. Cab	1	Tail/Marker Light c/b tripped #7471
5. Rolling Test / Rolling Brake Test	1	Horn c/b #7470
		AX Trk #20
		Time Allotted: 35:00 / Actual Time: :25 min.
II. Mainline Operation		
6. Communications	1	
7. Door Oper. & Station Stopping	1	
8. Use of Horn	1	
9. Speed Adherence/Manual Oper.	1	
10. Turn Back Moves	1	Location: Huntington Time Allotted: 02:00 / Actual Time: :02min.
11. Manual Route Selection	1	Location: C98-32
12. EV Shutoff	1	Time Allotted: 00:30 (1:00) / Actual Time: :05 sec
III. Yard Operation		
13. Communications	1	
14. Yard Movements	1	
15. Coupling (8 to 8)	1	Time Allotted: 08:00 (12) / Actual Time: :06 min. Cars Used: 7693 + 7611
16. Uncoupling	1	Time Allotted: 05:00 (7.5) / Actual Time: :05 min Cars Used: < 7610 > 7574
17. Isolation (Self-Recovery)	1	Time Allotted: 15:00 (22.5) / Actual Time: :15 min Cars Used: 7610 <7574>
18. Manual Switch Operation	1	AX #177
IV. Miscellaneous		
19. Recovery Train Operation	1	Time Allotted: 12:00 (18) / Actual Time: :10 min Cars Used: 7574 + 7610
20. Troubleshooting	Problem 1	1 Door Problem # (#3.4) #7693 :04 min
	Problem 2	1 Friction Brake c/b tripped (No Brakes Off) #7693 :09 min

RTRA-906-01-06

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 2

Document 13: RVO #2 First Attempt Certification, Page 2 of 2

INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION			
Name:	Emp.No:	Division:	Date: 5-6-24
Reason for Certification: Please place a check in an area below:			
<input type="checkbox"/> Certification: Student <input type="checkbox"/> Pre-certification: Student <input type="checkbox"/> Division Request <input checked="" type="checkbox"/> Re-Certification <input type="checkbox"/> Return to Duty <input type="checkbox"/> Other:			
Exam Administered	Score	Date Taken	Equipment (current/working condition)
Terminal Procedures	%		MOR
Interlocking Procedures	80 %	5-6-24	Perm/Temp/Special Orders
Practical attempt #:	1	5-6-24	Troubleshooting Guide
			Flashlight
			Safety Vest
			Footwear
			Identification (WMATA, RWP)
Comments:			
Will need to retake interlocking procedures written exam, scored 80%			
Signatures:			Date:
Employee:			x 5/6/24
Examiner:			5-6-2024

RTRA-906-02-00

INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 1

Document 14: IO First Attempt Certification, Page 1 of 2

Incident Date: 5/13/2024 Time: 01:18 hours
 Final Report – Red Signal Overrun
 E24376

Drafted By: SAFE 706 – 07/01/2024
 Reviewed By: SAFE 702 - 07/08/2024
 Approved By: SAFE 707 – 07/12/2024

INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION (continuation sheet) Emp No.: [REDACTED] Date: 5-6-24

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
Terminal Operations	N/A	
I. Command, Control & Coordination of Terminal Operations	N/A	Terminal Location: _____
1. Interlocking Panel Operations	N/A	
2. Communication	N/A	
3. Problem Solving	N/A	Problem 1: _____
	N/A	Problem 2: _____
4. RPM System Operations	N/A	
5. Terminal Documentation	N/A	
II. Manual Terminal Operations	N/A	
6. Manual Switch Operations	N/A	
Interlocking Operations	1	
1. Manual Switch Operations	1	Switch #37 N99
2. Interlocking Panel Operations	1	Sets complete leads while watching the monitor
3. RPM System Operations	1	Properly utilizes RPM system
4. Yard Power Panel Operations	1	Properly demonstrates how to remove 3rd rail power
5. Problem Solving	1	Problem 1: Unauthorized person on the roadway
	1	Problem 2: Interlocking out of correspondence
6. Documentation	1	Yard documentation filled out properly
7. Communication	1	Clear and concise radio communication
8. Yard and Shop Moves	1	Moved train from the shop to build for revenue

RTRA-906-02-00 INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION Page 2

Document 15: IO First Attempt Certification, Page 2 of 2

M INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION **RTRA**

Name: [REDACTED] Emp.No.: [REDACTED] Division: [REDACTED] Date: 5-7-24

Reason for Certification: Please place a check in an area below.

☐ Certification: Student ☐ Pre-certification: Student ☐ Division Request ☐ Re-Certification ☐ Return to Duty ☒ Other: Interlocking Exam only 2nd Attempt

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
Terminal Procedures	N/A %		MOR	✓	
Interlocking Procedures 2nd Attempt	78 %	5-7-24	Perm/Temp/Special Orders	✓	
Practical attempt #: QL- N/A			Troubleshooting Guide	✓	
			Flashlight	✓	
			Safety Vest	✓	
			Footwear	✓	
			Identification (WMATA, RWP)	✓	

Comments:

Signatures: _____ Date: X 5/7/24

Employee: [REDACTED] 5-7-2024

Examiner: [REDACTED]

RTRA-906-02-00 INTERLOCKING AND TERMINAL SUPERVISOR JOB TASK PROFICIENCY EVALUATION Page 1

Document 16: IO Second Attempt Certification, Page 1 of 2

Incident Date: 5/13/2024 Time: 01:18 hours
 Final Report – Red Signal Overrun
 E24376

Drafted By: SAFE 706 – 07/01/2024
 Reviewed By: SAFE 702 - 07/08/2024
 Approved By: SAFE 707 – 07/12/2024

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
Terminal Operations	N/A	
I. Command, Control & Coordination of Terminal Operations	N/A	Terminal Location: _____
1. Interlocking Panel Operations	N/A	
2. Communication	N/A	
3. Problem Solving	N/A	Problem 1: _____
	N/A	Problem 2: _____
4. RPM System Operations	N/A	
5. Terminal Documentation	N/A	
II. Manual Terminal Operations	N/A	
6. Manual Switch Operations	N/A	
Interlocking Operations	N/A	
1. Manual Switch Operations	N/A	
2. Interlocking Panel Operations	N/A	
3. RPM System Operations	N/A	
4. Yard Power Panel Operations	N/A	
5. Problem Solving	N/A	Problem 1: _____
	N/A	Problem 2: _____
6. Documentation	N/A	
7. Communication	N/A	
8. Yard and Shop Moves	N/A	

Document 17: IO Second Attempt Certification, Page 2 of 2

Appendix E – Work Order(s)



Washington Metropolitan Area Transit Authority Maintenance and Material Management System Work Order List

Page 1 of 1
MX76PROD

WO Tracking (WMATA)

WO # JP #	Description	Parent Wo Create Mile	Type Comp Mile	Failure Problem	Location Work Location	Asset	Maint Office Owning	Labor Crew	Targ. Start Targ. Comp	Status Status Date	Actual Start Actual Finish
18613473	N99, Safety request Radio Operational test on tracks 1,2&3		TST	SAMS001-TEST EQUIPMENT	2280 N99, DULLES YARD	COMMN99	COMM	COMMR3R		CLOSE	05/15/2024 13:41
		0.0	0.0	1760-ERRATIC OPERATION			COMM			05/15/2024 21:53	05/15/2024 13:41
Number of Records:		1									

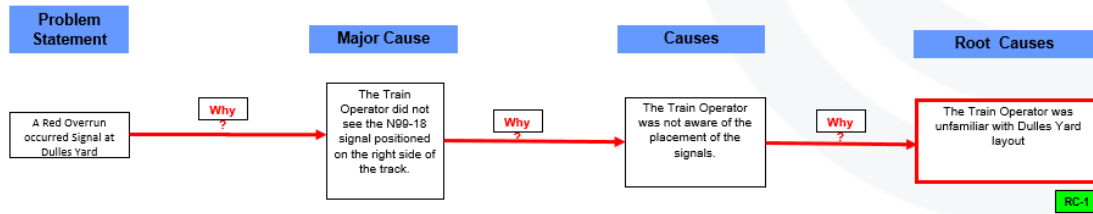
Document 18: Shows a CMOR work order for a radio test of Dulles Rail Yard's reported erratic operations.

Incident Date: 5/13/2024 Time: 01:18 hours
Final Report – Red Signal Overrun
E24376

Drafted By: SAFE 706 – 07/01/2024
Reviewed By: SAFE 702 - 07/08/2024
Approved By: SAFE 707 – 07/12/2024

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Appendix F – Why-Tree Analysis



Root Cause Analysis

Chart 1: Root Cause Analysis.

E24376 – Red Signal Overrun – Dulles Yard





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

FINAL REPORT OF INVESTIGATION A&I E24465

Date of Event:	June 20, 2024
Type of Event:	O-8: Red Signal Overrun
Incident Time:	10:23 Hours
Location:	C&J Junction – Signal C97-12, Track 1
Time and How received by SAFE:	10:37 Hours – Safety Information Officer (SIO)
WMSC Notification Time:	13:01 Hours
Responding Safety Officers:	Office of Safety Investigations (OSI)
Rail Vehicle:	Train ID 433 (L7732-33x7426-27x7449-48T)
Injuries:	None
Damage:	Switch Point #1 – Switch Rod
Emergency Responders:	None
SMS I/A Number	20240620#117794MX

C&J Junction Signal C97-12 – Red Signal Overrun

June 20, 2024

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Abbreviations and Acronyms

AIMS	Advanced Information Management System
ARS	Audio Recording System
AOM	Assistant Operations Manager
ATCM	Automatic Train Control Maintenance
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CMOR	Office of Chief Mechanical Officer
ERT	Emergency Response Team
IIT	Incident Investigation Team
LCP	Local Control Panel
MICC	Metro Integrated Communication and Command Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OSI	Office of Safety Investigations
PMI	Preventive Maintenance Inspection
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
ROCC	Rail Operations Control Center
RVO	Rail Vehicle Operator
RWIC	Road Worker In-Charge
SAFE	Department of Safety
SIO	Safety Information Officer
SMS	Safety Measurement System
TCR	Train Control Room
TRST	Office of Track and Structure
VMDS	Vehicle Monitoring and Diagnostic System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Washington Metropolitan Area Transit Authority
Department of Safety – Office of Safety Investigations

Executive Summary

**Note that all times listed are approximate and may contain minor variations due to differences between systems of record. **

On Thursday, June 20, 2024, at 10:23 hours, Train ID 433 (L7732-33x7426-27x7449-48T), a six-car 7000 series consist, was traveling towards King Street Station on track 1 when it passed signal C97-12, which was displaying a red aspect.

Prior to the event, the Button Rail Traffic Controller (RTC) granted Automatic Train Control Maintenance (ATCM) personnel permission to enter the C97 Train Control Room (TCR) to perform Cab Signaling System ¹Testing, which was also confirmed by the logbook located within the Train Control Room.

After the Red Signal Overrun, the Rail Vehicle Operator (RVO) of Train ID 433 contacted the Metro Integrated Communication and Command Center (MICC), Radio RTC, and reported that the train had overrun signal C97-12. The signal was red, but the train had speed commands.

Closed-circuit television (CCTV) revealed that after passing signal C97-12 red, the train stopped without entering the interlocking.

After the RVO reported the event, the Radio RTC failed to acknowledge the report of a red signal with speed commands and inquired if the train currently had speed commands. The RVO confirmed that the train did not have speed commands, and then the Radio RTC granted a permissive block to King Street Station, track 1.

The RVO entered the stop-and-proceed method and then began to move the train. The train traversed the interlocking, damaging Switch #1, which was positioned in reverse. The RVO continued servicing stations towards Downtown Largo Station.

The Advanced Information Management System (AIMS) displayed that Switch #1 was out of correspondence.

At 10:37 hours, the Assistant Operations Manager (AOM) notified the Safety Information Officer (SIO) that Switch #1 was out of correspondence.

The Radio RTC dispatched the ATCM personnel to inspect Switch #1 at C & J² Junction. The ATCM personnel utilized the Local Control Panel (LCP), exercised Switch #1, and then confirmed that the switch was out of correspondence in normal and reverse positions. Next, the ATCM personnel attempted to crank and clamp Switch #1 in the normal position but were unsuccessful. The ATCM personnel reported that Switch #1 was damaged and that there was a two-inch gap between the switch point and the running rail, and they observed a crack at the switch point. The ATCM personnel clamped Switch #1 in a reverse position.

The ATCM Supervisor reported to the MICC that Switch #1 had been trailed; a Red Signal Overrun had occurred.

¹ Cab Signal System – a signal system whereby block conditions and the prevailing civil speed commands are transmitted and displayed directly within the train cab.

² The C & J Junction is where the C-Line and J-Line come together to share the same track.

At 12:29 hours, the RVO was identified and removed from service at Federal Center Station. At 12:33 hours, the incident train, operating as Train ID 630, was removed from service at Ballston Station and dispatched to West Falls Church Yard.

The Office of Safety Investigations (OSI) was dispatched and documented the scene with photographs.

At 15:46 hours, ATCM began replacing the Lock Rod on Switch #1. At 18:19 hours, ATCM personnel reported replacing the lock rod and making necessary adjustments. At 19:53 hours, all personnel and equipment were cleared off the roadway, and Switch #1 was placed back in service.

The probable cause of the Red Signal Overrun event on June 20, 2024, at the C&J Junction, was the use of extender boards during testing, which allowed a logic override due to a misconfiguration of the equipment. This indicates a technical issue stemming from improper setup. Additionally, the Automatic Train Control Mechanic (ATCM) did not follow the proper procedures for conducting Cab Signal testing, contributing to the event.

The probable cause of the damage to Switch #1 resulted from the Rail Vehicle Operator (RVO) failing to correctly identify the rail alignment, which points to an operational error. Additionally, the Button Rail Traffic Controller (RTC) did not inform the Radio RTC of the last route established, which led to an improper permissive block being granted to the RVO.

This event resulted from a combination of operator error, ongoing track maintenance affecting the signal system, and the lack of immediate alarm indications review.

Communication Breakdown: Lack of communication between the Button RTC and Radio RTC about the last route established.

Procedural Lapse: Radio RTC did not acknowledge the RVO's report and failed to verify the route status.

Operator Error: The RVO failed to identify the rail alignment when moving the train.

Procedural Non-compliance: ATCM personnel did not follow the established cab signal testing procedures.

Training/Oversight Issues: Potential lack of adequate training or oversight for ATCM personnel.

- Rail Vehicle Operator Certification
 - Rail Vehicle Operator 30-day work history review
 - Metrorail Operating Rulebook (MOR)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Metro Integrated Command and Communications Control (MICC) Incident Report
 - Maximo Data
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
 - ARS (Audio Recording System) playback [Radio 3 and Landline Communications]
 - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Vehicle Monitoring and Diagnostic System (VMDS)
 - Closed-Circuit Television (CCTV)

Investigation

On Thursday, June 20, 2024, at 10:23 hours, Train ID 433 (L7732-33x7426-27x7449-48T), a six-car 7000 series consist, was traveling towards King Street Station on track 1 when it passed signal C97-12, which was displaying a red aspect.

According to AIMS Data, at 10:22:54 hours, Train ID 433 overran signal C97-12 red.

10:22:54.190D	06/20/24	Duke Street	TRAIN 433 OVERRAN SIGNAL C97-12 WHICH WAS RED SINCE 10:16:12 BY
10:24:07.049D	06/20/24	Duke Street	C97-6 IS IN AUTO MODE WHILE EXIT C97-12 IS PROHIBITED ACKNOWLEDGED BY
10:27:02.138D	06/20/24	Duke Street	C97-6 IS IN AUTO MODE WHILE EXIT C97-12 IS PROHIBITED ACKNOWLEDGED BY
10:28:53.225D	06/20/24	Duke Street	TRAIN 433 OVERRAN SIGNAL C97-12 WHICH WAS RED SINCE ACKNOWLEDGED BY
10:33:33.581D	06/20/24	Duke Street	TRAIN 433 OVERRAN SIGNAL C97-12 WHICH WAS RED SINCE ACKNOWLEDGED BY

Figure 1 – Yellow circle highlights Train ID 433 overran signal C97-12 via AIMS Data.

According to the AIMS Playback, at 10:23, Train ID 433 overran signal C97-12. When a signal displays red and flashes, it indicates a red signal overrun.

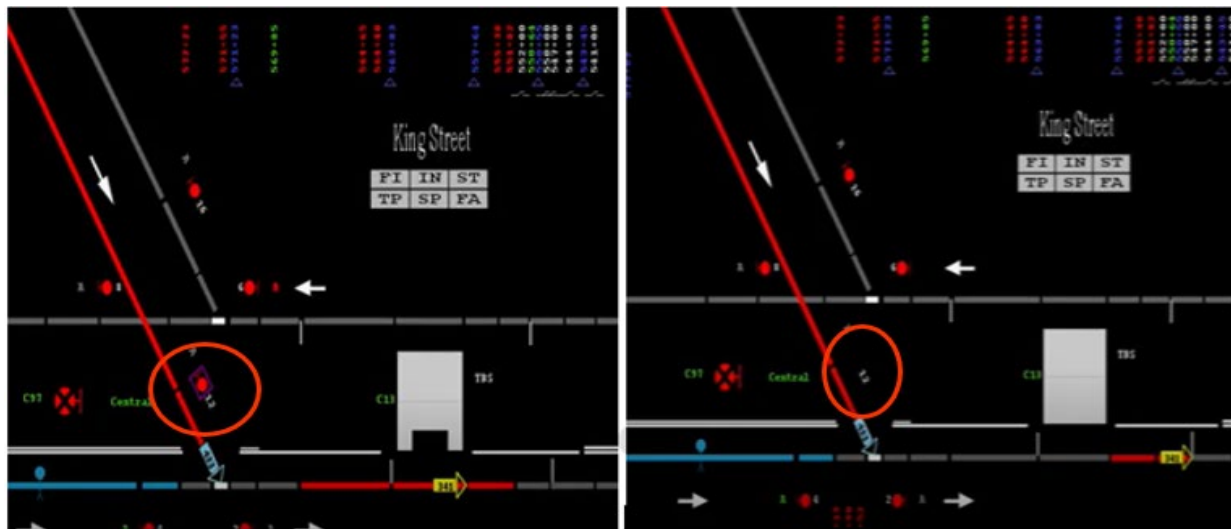


Figure 2- Depicts Train ID 433 passing red signal C97-12 at 10:23:15 hours (left). C97-12 signal is blank, indicating a red signal is flashing on the AIMS screen at 10:23:48 hours (right).










Status	Color	Graphic
Stop	Red	
Clear	White	
Fleeted Clear	Green	
Fleeted Stop	Red over Green	
Requested	Yellow	
Selected Route Entrance	Yellow	
Exit Available	Yellow Flashing	
SAS_Overrun	Red Flashing	
Blocking	Light Blue	

Figure 3 - AIMS signal status and description.

According to the Audio Recording System (ARS), it was revealed that before the Red Signal Overrun event, a crew of three ATCM personnel entered the C97 Train Control Room to conduct Cab Signal testing and collect readings.

At 10:24 hours, the RVO of Train ID 433 contacted the MICC, and reported that the train passed a red signal with speed commands. After the RVO reported the event, the Radio RTC did not acknowledge the report from the RVO and inquired if the train currently had speed commands. The RVO advised that the train operated around the curve and had speed commands but that the train no longer had speed commands. The Radio RTC instructed the RVO to verify that the train had passed signal C97-12 and then granted a permissive block to King Street Station, track 1.

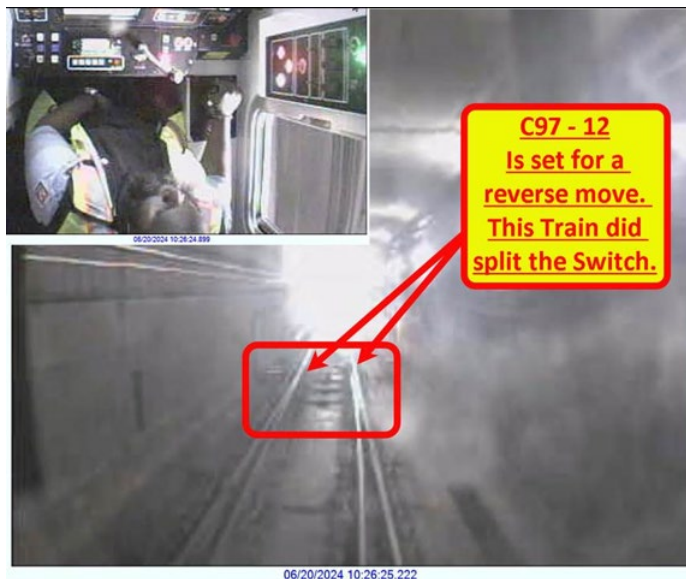


Image 1 – C97 Interlocking set in a reverse position.

After arriving and servicing King Street Station, the train then continued in revenue service towards Downtown Largo Station.

The investigation revealed that the Radio RTC requested confirmation from the Button RTC that Train ID 433 reported a red signal overrun while the train still had speed commands. The Button

RTC informed Radio RTC to give Train ID 433 a permissive block if the train did not have speed commands.

Between 10:22 hours and 10:29 hours, the Assistant Director (Metro 1), Operations Manager (Rail 1), and Assistant Operations Manager (Rail 2) were working to resolve a track unit incident on another rail line when the red signal overrun event occurred.

At 10:29 hours, Rail 1 informed Rail 2 that C97 Switch #1 was out of correspondence.³

According to CCTV, at 10:30 hours, the Radio RTC noticed Switch #1 was out of correspondence at signal C97-12 and confirmed with the Button RTC. The Rail 2 was notified and viewed the switch out of correspondence from the Button RTC AIMS screen.

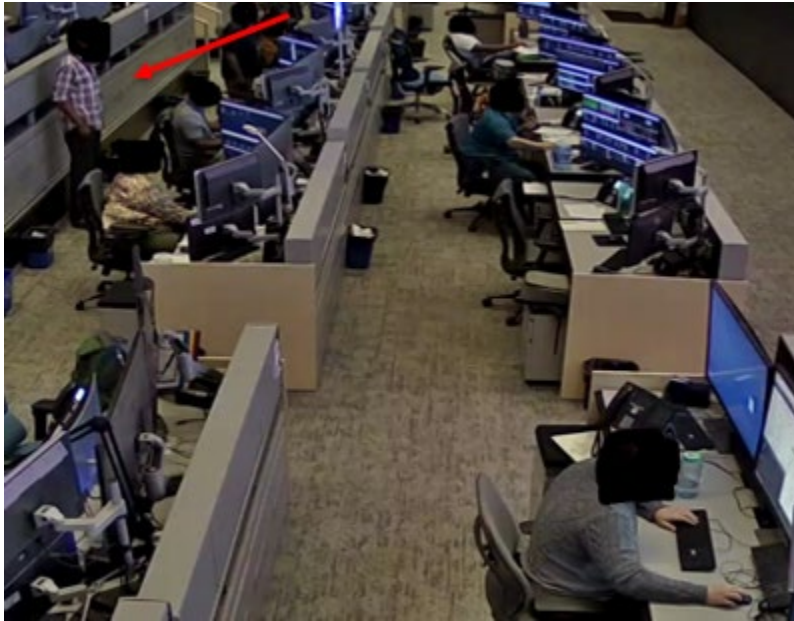


Image 2 – Red Arrow Identifies Rail 2 is located at the Ops 3 Console Desk at 10:30 hours.

The ATCM personnel working in the TCR were advised that Switch #1 was out of correspondence and requested that they take control of the panel and give a normal call. ATCM personnel returned control of the panel to the Button RTC.

At 10:36 hours, the ATCM Road Worker In-Charge (RWIC) requested permission to enter the roadway at C97 to clamp Switch #1 and requested permission to take control of the panel.

At 10:37 hours, the OM notified the Safety Information Office (SIO) of the switch out of correspondence. Simultaneously, Radio RTC requested the ATCM personnel to clamp Switch #1 in a normal position to allow the Yellow Line trains to travel to King Street Station.

At 10:43 hours, ATCM personnel advised the Radio RTC that they could not crank and clamp Switch #1 because of a two-inch gap between the switch point and the running rail and a cracked switch. After the inspection, ATCM personnel requested Track and Structures (TRST) personnel to respond to the scene, and a second Radio RTC began communicating with personnel.

³ There was mention of a Red Signal Overrun or Red Signal Overrun Alarm activation.

At 10:45 hours, Blue and Yellow Line trains began to single track by way of track 2.

At 11:16 hours, the TRST Emergency Response Team (ERT) arrived at the scene.

At 11:38 hours, the ATCM Supervisor arrived on the scene, and at 12:00 hours, the ATCM Supervisor deemed Switch #1 to be trailed.

At 12:29 hours, the RVO was identified and removed from service at Federal Center Station.

At 12:33 hours, the incident train, operating as Train ID 630, was removed from service at Ballston Station and dispatched to West Falls Church Yard.

At 13:32 hours, a Safety Investigator arrived at signal C97-12.

At 15:46 hours, ATCM began replacing the Lock Rod on Switch #1. At 18:19 hours, ATCM personnel reported replacing the lock rod and making necessary adjustments. After adjustments had been made, a Preventive Maintenance Inspection (PMI) was performed. At 19:53 hours, all personnel and equipment were cleared off the roadway, and Switch #1 was placed back in service. ATCM personnel also reported that no test train was needed for the Yellow Line, and normal service could resume.

On Saturday, June 22, 2024, Signal Engineering, Signal Maintenance, Infrastructure, Rail Transportation, Vehicle Engineering, and Safety personnel conducted a controlled test with a 7000 series consist and personnel in the TCR reenacting a Cab Signal test. This test required a 7000 series train to occupy track circuit J1-503, just before C97-12 signal red, while an Extender Board was placed into track circuit J1-503 and a jumper to J1-503 transmitter Pins 1 to 3 with the Power Amplifier PCB SW1 in the Normal it created 55 MPH speed commands with a red C97-12 signal.

The Office of Communication and Signaling tested and confirmed that a speed command of 55 MPH can be transmitted during track circuit Cab-level testing when the test equipment is configured specifically. The Automatic Train Protection system's logic and commands were verified to function correctly under normal operating conditions, with no issues detected.

The results confirmed that the ATCM personnel failed to follow the Cab Signal Level 3.2 procedures of the ATC-1000, Instructions for Testing and Inspection of ATC Apparatus Systems.

3 Cab Signal Level

- 3.1** On the Extender PCB, install the test jumper between pins 1 and 6 to enable the F9 cab (4550 Hz) and re-apply power to the module under test (Refer to 1012A – 1- Figure 8A and 8B).
- 3.2** Set the Power Amplifier PCB switch SW1 to “F9” position (Refer to 1012A – 1- Figure 7A) for the Power Amplifier PCB in slot 2 or 9.
- 3.3** * Using an oscilloscope, measure and record the F9 train carrier TX peak-to-peak voltage level at the Yellow/Yellow test points on the Power Amp PCB.
- 3.4** * Record the transmitter's train **power level** setting – SW2 on the Power Amp PCB (Refer to 1012A – 1- Figure 8B).

Figure 4 – depicts the Cab Signal Level 3.2 procedures.

Chronological Event Timeline

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

Time	Description
10:03:04 hours	<u>Button RTC</u> : Gave ATC 2180 permission to enter the TCR. [Phone]
10:18:44 hours	Train ID 433 departed Van Dorn Street Station. [SPOTS]
10:22:00 hours	Train ID 433 overran signal C97-12 signal red. [AIMS]
10:22:08 hours	<u>Radio RTC 1</u> : Requested validation from Button RTC regarding the status of a track circuit on track 1 and was advised that ATCM was taking circuit readings. [Ops 3 Ambient]
10:24:17 hours	<u>Train ID 433</u> : Reported their Train ID as 411 and that the signal was red as they approached it heading in the direction of King Street Station, but the train still had speed commands. [Radio, Ops3]
10:24:32 hours	<u>Radio RTC 1</u> : Notified the Button RTC that Train ID 433 reported having speed commands but a red signal in approach to King Street Station. <u>Button RTC</u> : Requested if the train has speed commands. [Ops 3 AMPRI]
10:24:39 hours	<u>Radio RTC 1</u> : Requested confirmation if the train currently has speed commands. Acknowledging the train as Train ID 433. <u>Train ID 433</u> : Advised they had speed commands as they traveled around the curve. However, they confirmed that they currently did not have speed commands. [Radio, Ops3]
10:24:49 hours	<u>Button RTC</u> : Requested confirmation from Radio RTC 1 if Train ID 433 does or does not have speed commands. <u>Radio RTC 1</u> : Advised that Train ID 433 does not have speed commands. <u>Buttons RTC</u> : Advised the Radio RTC to give Train ID 433 a permissive block. [Ops 3 Ambient]
10:30 hours	<u>Metro 1 & Rail 1</u> : Observed C97-12 switch out of correspondence and requested Rail 2 to the floor to assist the RTC. [Metro 1 Ambient]
10:30:05 hours	<u>Radio RTC 1</u> : Noticed switch 1 at C97-12 was out of correspondence and requested confirmation from Button RTC. <u>Button RTC</u> : Confirmed that the switch was showing as __out of correspondence and notified the AOM. [Ops 3 Ambient]
10:30:05 hours	The AOM viewed the AIMS screen behind the Button RTC as they updated them on the switch out of correspondence. [CCTV]
10:31:13 hours	<u>Button RTC</u> : Advised ATCM that were in the C97 Train Control Room that switch 1 was out of correspondence and requested they take control of the panel and give the switch a normal call. [Phone]
10:33:05 hours	<u>Radio RTC 1</u> : Advised Train ID 325 they were unable to establish traffic and make good announcements to customers due to C97 switch out of correspondence. <u>Train ID 325</u> : Failed to acknowledge transmission. [Radio, Ops3]
10:33:07 hours	<u>Button RTC</u> : Requested control of the board from ATCM that was in the C97 Train Control Room. [Phone]
10:33:45 hours	<u>AOM</u> : Notified MOC C97-12 that switch 1 was out of correspondence. [Phone, Rail 2]
10:34:59 hours	<u>Radio RTC 1</u> : Made announcements informing all TRST personnel to stand by and stand clear of the radio. [Radio, Ops3]
10:36:11 hours	<u>Radio RTC</u> : Requested Train ID 342 to stop movement and reverse operating ends. <u>Train ID 342</u> : Acknowledged. [Radio, Ops3]

Time	Description
10:36:37 hours	<u>ATCM</u> : Requested permission to enter the roadway at C97 to clamp switch 1. Also, permission to take control of the panel. <u>Radio RTC 1</u> : Granted ATCM. <u>ATCM</u> : Confirmed control of the panel and walking to switch 1. <u>Radio RTC 1</u> : Acknowledged transmission. [Radio, Ops3]
10:37:40 hours	<u>AOM</u> : Notified the SIO of the incident. [Phone, Rail 2]
10:37:43 hours	<u>Radio RTC 1</u> : Asked ATCM to clamp switch 1 in the normal. <u>ATCM</u> : Repeated switch 1 clamp in a normal for the C line, copy. <u>Radio RTC 1</u> : Acknowledged and requested an update once switch 1 is clamped in a normal switch point tucked, stood by, and clear for train movement. [Radio, Ops3]
10:38:54 hours	<u>Radio RTC 1</u> : Advised Train ID 325 to make good announcements. How do you copy? <u>Train ID 325</u> : Failed to acknowledge transmission. [Radio, Ops3]
10:39:00 hours	<u>Radio RTC 1</u> : Requested an update. <u>ATCM</u> : Advised they were clamping the switch. <u>Radio RTC 1</u> : Acknowledged. [Radio, Ops3]
10:30:32 hours	<u>Radio RTC 1</u> : Gave Train ID 342 an absolute block to Braddock Road Station platform, track 2, and requested the train be offloaded. [Radio, Ops3]
10:40:17 hours	<u>Radio RTC 1</u> : Asked ATCM to provide an update on switch 1. <u>ATCM</u> : Stated they were trying to place the switch in normal, but something was broken. Not able to crank it. [Radio, Ops3]
10:43:26 hours	<u>Radio RTC 1</u> : Contacted ATCM for an update. <u>ATCM</u> : Confirmed they were unable to crank the switch due to a one (1) finger gap. The switch doesn't tuck. <u>Radio RTC 1</u> : Acknowledged; ATCM was unable to crank the switch due to a two-inch gap, and the switch doesn't tuck. <u>ATCM</u> : Confirmed; switch point was cracked. There is a two-inch gap between the switch point and the running rail. Request track department personnel. [Radio, Ops3]
10:44:10 hours	<u>ATCM</u> : Requested to move the first train, the switch is clamped in normal but not tucked. Can we move the train, personnel standby, and standing clear? [Radio, Ops3]
10:45:10 hours	Trains began single-tracking. [Radio, Ops3]
10:47:53 hours	<u>ATCM</u> : Requested TRST personnel unable to route the train because of the big gap we are unable to send the train. <u>Radio RTC 2</u> : Confirmed, Train ID 325 would return to Eisenhower Avenue, stand by, and stand clear. [Radio, Ops 3]
10:48:12 hours	<u>Radio RTC 2</u> : Requested Train ID 325 to reverse ends in the direction of Huntington Station. <u>Train ID 325</u> : Failed to acknowledge transmission. [Radio, Ops 3]
10:48:57 hours	<u>AOM</u> : Informed SIO trains are single-tracking. [Phone]
10:52:24 hours	<u>Radio RTC 2</u> : Inquired if Train ID 325 has reversed ends. Train ID 325, have you reversed ends? <u>Train ID 325</u> : Failed to acknowledge. [Radio, Ops 3]
10:53:38 hours	<u>Radio RTC 2</u> : Inquired if switch 1 was clamped in the reverse. <u>ATCM</u> : Advised that the switch was clamped in reverse. [Radio, Ops 3]
10:54:18 hours	<u>MOC</u> : Advised the AOM that TRST personnel were in route with an estimated time of arrival in 30 minutes. [Phone]

Time	Description
11:03:35 hours	Train ID 325 reversed operating ends and arrived on the platform at Eisenhower Station. [AIMS]
11:16:00 hours	ERT arrived on the scene. [Radio, Ops 3]
11:38:00 hours	ATC Supervisor arrived on the scene. [Radio, Ops 3]
12:00:00 hours	ATC Supervisor advised that switch one was trailed. [Radio, Ops 3]
12:29:00 hours	RVO was removed from service at Federal Center Station. [Radio, Ops 3]
12:33:31 hours	Train ID 630 was removed from service at Ballston Station. [SPOTS]
12:50:00 hours	Radio RTC 1 on OPS 3 was removed from service. [CCTV]
13:01:00 hours	WMSC provided an incident scene release. [Phone]
13:32:00 hours	SAFE arrived on the scene. [Radio, Ops 3]
15:46:00 hours	<u>ATCM</u> : Reported that they had the necessary part for switch one, which was a Lock Rod, and were in the process of installing the part. [Radio, Ops 3]
18:19:00 hours	<u>ATCM</u> : Reported replacing the lock rod and making necessary adjustments. After adjustments have been made, a PMI will need to be performed. [Radio, Ops 3]
19:53:00 hours	<u>ATCM</u> : All personnel and equipment were clear of the roadway, and switch one was placed back in service. Automatic Train Control personnel also reported that no test train was needed for the Yellow Line, and normal service could resume. [Radio, Ops 3]

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

The Office of Chief Mechanical Officer (CMOR) / Incident Investigation Team (IIT)

Adopted from CMOR IIT report with minor formatting and grammatical edits:

IIT completed a detailed review of the Train Logs, Executive Traffic Display, and Train video files.

The SAFE Notification showed the Incident Occurred at 10:33. The Train Forward Video Time indicated the Train passed the Red Signal at 10:23:45. The Train arrived at Van Dorn Station with Train ID 433 and then changed its Train ID to 411 before leaving the Station; see the Event Mirror Memory (EMM) screenshot below.

On June 20, 2024, at 10:22 hours, (L7732-33x7426-7427.7449-7448T) passed Red Signal No. 12 when moving through the C & J Junction C97; see screenshot below.

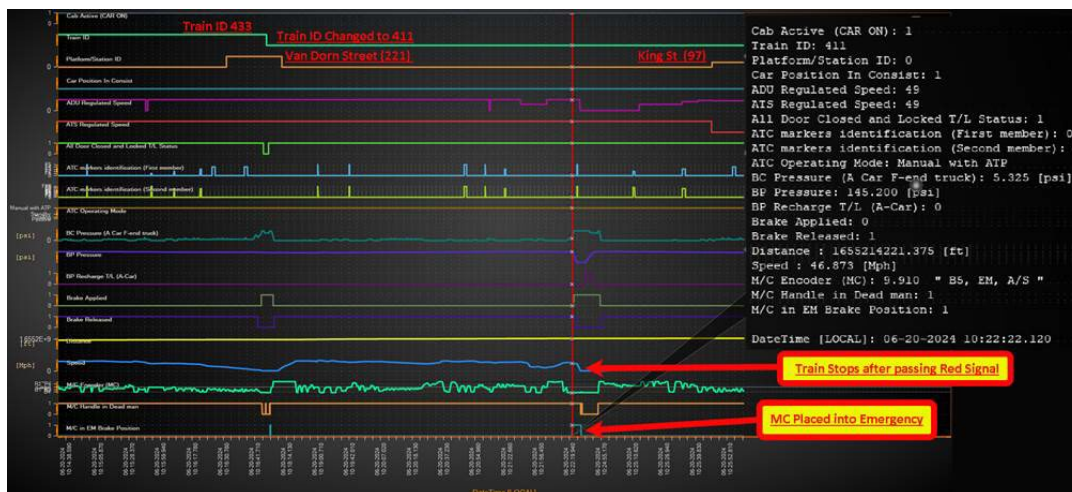


CMOR IIT confirms that Car 7732 was the Lead Car at the time of this Incident.

Based on the Vehicle Monitoring and Diagnostic System Fault Logs and Local Control Unit Log for Car 7732, no faults were observed that would have contributed to this Incident. The Rail Vehicle operated as designed.

Based on the Forward Camera, Train ID 433 split Switch 1 when the Train proceeded through the switch set for a Reverse Move.

Below is the Event Graph showing the Train Operation between Van Dorn and King Street Stations.



Time Events:

1. At 10:22:22, the MC was placed in the Emergency Position; Train Speed was 46 MPH.
2. The Train Passed the Red Signal at 10:23:45.390 (NVR Time). NOTE: There is a small difference between the Train EEM and NVR Time Stamps.
3. At 10:22:35.150, the Train came to a stop. The X-Cross Over Frog is seen ahead of the Train.

4. At 10:24:55.650, the Train began moving toward King St Station.
5. At 10:26:25 (NVR Time), Train Split Switch 12 was in the reverse position, as seen in the Forward Camera video.
6. The Train continued and came to a stop at the King Street Station.

Office of Communications and Signaling (COSI)

Adopted by COSI report with minor format and grammatical edits:

The Office of Communication and Signaling tested and confirmed that a speed command of 55 MPH can be transmitted during track circuit cab-level testing when the test equipment is configured specifically. The Automatic Train Protection system's logic and commands were verified to function correctly under normal operating conditions, with no issues detected.

Signal Engineering Investigation Report

Title:	CAB Signal Investigation / Testing
Report Date:	June 26, 2024
Test Date / Time:	June 22, 2024 (2AM to 4:30AM)
Location:	C97 / C & J Junction (Duke Street)

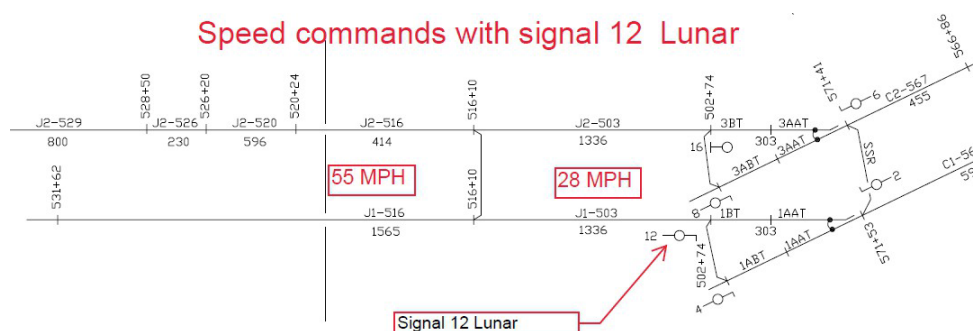
Event Description

Thursday, June 20, 2024, Train 433/411 passed a Red Signal 12. The Operator reported that the train received a 55 MPH Speed Command up to Red Signal 12.

Summary of Findings (Review of Documentation and Testing)

1. Train VMS data confirmed that the train did receive a 55 MPH Speed Code in Track Circuit J1-503.
2. Track Circuit J1-503 Signal Logic is NOT designed and can NOT send out a 55 MPH under normal operating conditions.
3. ATC Maintenance was testing track circuit J1-503 for Cab Levels. The Extender Board requires jumpers to circumvent the signal logic on the power amplifier board, enabling either F9 or F10 to be generated to measure the levels required by the procedure.
4. Tests proved that the Signal System and Track Circuits function as designed.

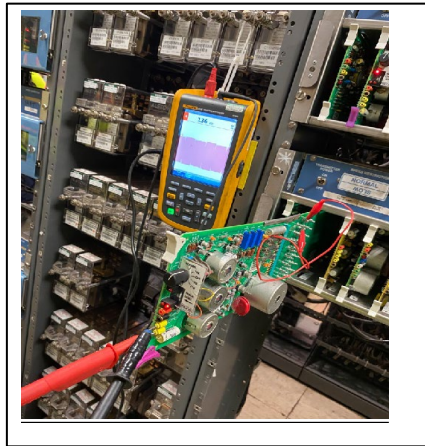
Diagram of C & J Junction - Test Location with Designed Speeds



Speed trains get on approach to C97 interlocking on Track 1 when signal 12 is lunar.



Actual Signal received by the train during Scenario 2



Results of the testing

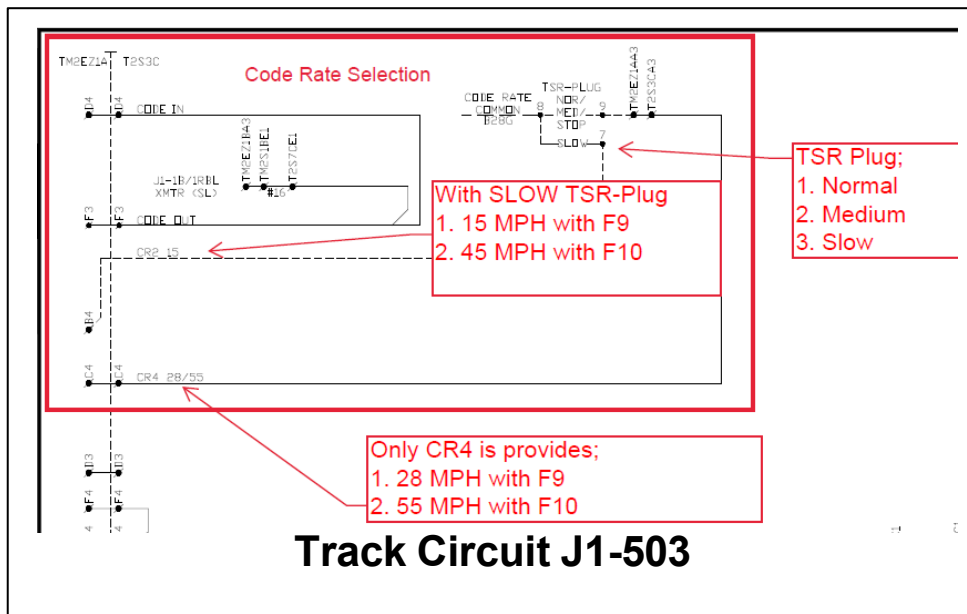
Testing resulted in the following conditions:

- Place the jumper on F9 (1 to 6) or F10 (1 to 3) on the Extender Board.
- Switch 1 should be set to either F9 or F10, not to "Normal".
- Switch 1 should not be set to "Normal" while the jumper is still in place. If this occurs, with switch 1 is set to "Normal" while either jumper is in place, a code rate modulated cab signal will be sent to the roadway and will be received by the train as a speed command.

Scenario: Speed displayed on the train console while Switch 1 is set to "Normal." With SLOW and NORMAL speed restrictions, these are mapped up to the Speed Limit Chart indicated below.

Speed Limits			
SPEED LIMIT CHART			
CR	F9	F10	HZ
1	01-L	01-R	3.0
2	15	45	4.5
3	22	50	6.83
4	28	55	10.1
5	35	65	15.3
6	40	75	21.5

- While the Train occupies Track circuit J1-503
 - Speed coupler - Slow
 - Jumper F9 (1 to 6) combined with CR2 results in a 15 MPH
 - Jumper F10 (1 to 3) combined with CR2 results in a 45 MPH
 - Speed restriction - Normal
 - Jumper F9 (1 to 6) combined with CR4 results in a 28 MPH
 - Jumper F10 (1 to 3) combined with CR4 results in a 55 MPH
- While the Train occupies Track circuit J1-516
 - Speed restriction – Slow
 - Jumper F9 (1 to 6) combined with CR2 results in a 15 MPH
 - Speed restriction - Normal
 - Jumper F9 (1 to 6) combined with CR4 results in a 28 MPH
 - Jumper F10 (1 to 3) combined with CR6 results in a 75 MPH



The 3005B-Track Circuit Adjustment Procedure test has been suspended until further notice from the Engineering Department, pending the development of a solution to address this incident.

Office of Rail Transportation (RTRA)

Adopted from RTRA report:

The Office of Rail Transportation Division report concluded that the train overran a red signal at no fault of the RVO. The Radio RTC gave the RVO a permissive block to move the train. However, the RVO failed to verify the correct rail alignment for the train to move towards King Street Station. The video confirms that the train was operated through the improperly aligned switch after a full stop, resulting in the switch damage.

The Division also considered swift action: immediately applying the train brakes when the RVO realized that the train was not automatically slowing down approaching the C97-12 signal red. The train still displayed speed readouts, and the RVO's actions demonstrated exceptional vigilance and commitment to safety and prevented a major incident.

As a result of the above-referenced infraction/violation, Division Management reduced the Level III violation to an Interview-Re-Instruction with Refresher Training.

The RVO completed Rail Alignment Refresher Training with the Office of Rail Operations Quality Training on Monday, July 8, 2024.

Interview Findings

As part of the investigation into the event, SAFE interviewed eight people. The interview(s) 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.

Rail Vehicle Operator

- The RVO stated that when they approached the C97-12 signal, it was red, but the train had speed commands.
- The RVO notified the Radio RTC that they had passed the signal and had no speed commands.
- The RVO stated they lost speed commands after they passed the C97-12 signal.
- The RVO stated they have been certified as RVO for 2 months.
- The RVO stated they were certified as a RVO at Greenbelt Division (Green Line) and then transferred to Alexandria Division (Blue Line)

Automatic Train Control Mechanic #1

- Stated they were part of a group of three people to take the readings: One monitoring the control panels, one writing down readings, and one taking readings.
- They stated their assignment was part of the preventative maintenance, in which they test track circuit readings performed monthly to measure the right tolerance level and ensure the circuit does not drop train speed from 60 MPH to zero.
- Stated that the measuring detection required dropping the circuit first, which was the reason for coordinating with Central.
- Stated the PMI number ATC 1012A was being performed.

Automatic Train Control Mechanic #2

- They stated they were monitoring the local control panel for approaching trains.

Automatic Train Control Mechanic #3

- Stated they were the RWIC and took the role of noting observation readings.

Button Rail Traffic Controller

- The Button RTC stated they instructed the Radio RTC to give the RVO a permissive block to the station.
- The Button RTC stated they checked for a red signal overrun alarm on the AIMS but were unsuccessful in finding it.

Radio Rail Traffic Controller

- They stated they heard the RVO mention a red signal with speed commands.
- They stated they verified the next course of action with the veteran Button Rail Traffic Controller following the RVO's report of no-speed commands.
- Stated the Button Rail Traffic Controller mentioned to give the train a permissive block.
- Stated they did not observe a Red Signal Overrun alarm within AIMS.
- Stated they noticed switch 1 flashing out of correspondence.

Assistant Operation Manager

Incident Date: June 20, 2024 Time: 10:23 hours
Final Report – Red Signal Overrun
E24465

Drafted By: SAFE 710 – 09/03/2024
Reviewed By: SAFE 707 – 09/03/2024
Approved By: SAFE 707 – 09/03/2024

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- Stated they were notified of the Red Signal Overrun when ATCM mentioned the switch was trailed and an AIMS playback was reviewed.
- Stated they did not observe a Red Signal Overrun alarm.

Operations Manager

- They stated they were unaware of the Red Signal Overrun until ATCM reported that the out-of-correspondence switch 1 was trailed.
- Stated they did not observe a Red Signal Overrun alarm.

Weather

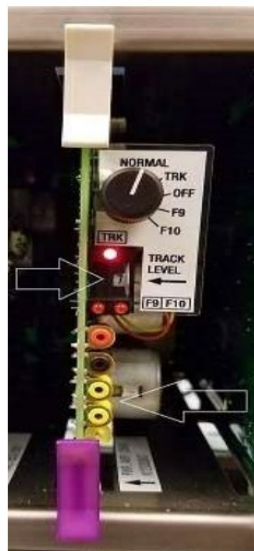
NOAA recorded the temperature at 82 ° F. at the time of the incident. Weather was not a contributing factor in this incident (Weather source: NOAA—Location: [Alexandria, VA.]).

Related Rules and Procedures

ATC-1000 (1012A-1 – Ansaldo STS/US&S AFTC TEST)

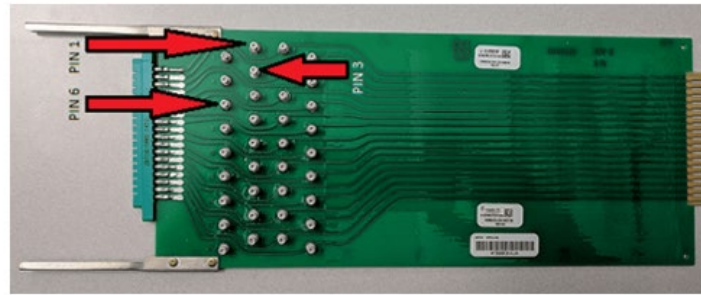
Initial Set-up

- 1.1 Verify that the traffic is established in the Normal direction.
- 1.2 Turn off the adjacent track circuits to obtain a steady signal (free of interference). Additional adjacent track circuit transmitters may need to be turned off to eliminate unwanted/interfering signals.
- 3.1 On the Extender PCB, install the test jumper between pins 1 and 6 to enable the F9 Cab (4550 Hz) and re-apply power to the module under test (Refer to 1012A – 1- Figure 8A and 8B).
- 3.2 Set the Power Amplifier PCB switch SW1 to the “F9” position (Refer to 1012A – 1- Figure 7A) for the Power Amplifier PCB in slot 2 or 9.

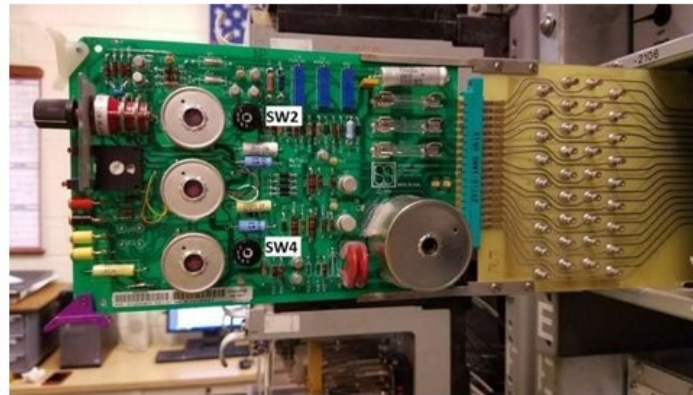


1012A – 1- Figure 7A: Picture of Power Amp

3.7 On the Extender PCB, move the test jumper to pins 1 and 3 to enable the F10 Cab (5525 Hz) (Refer to 1012A – 1- Figure 8A and 8B.)



1012A – 1- Figure 8A: Picture of Extender Board



1012A – 1- Figure 8B: Picture of Power Amplifier Board mounted on an Extender Board

Metrorail Operating Rulebook (MOR)

3.4 Improperly Lined Switches

3.4.1 - Rail vehicles shall not be operated through improperly aligned switches.

3.4.3 Rail Vehicle Operators who inadvertently accept a route for other than the intended destination, they shall immediately stop and contact the Rail Traffic Controller for instructions. Any subsequent turn back move shall be accomplished in compliance with rule outlined in this rulebook, and only after receiving authorization from the Rail Traffic Controller.

Human Factors

Fatigue

Signs and Symptoms of Fatigue

Rail Vehicle Operator

Safety Investigations evaluated signs and symptoms of fatigue that may have been present at the time of the incident. No signs or symptoms of fatigue were detected from the available data. Video of the incident was reviewed for signs of the RVO's fatigue. No signs or symptoms of fatigue were evident from the video. The RVO reported feeling fully alert at the time of the incident. The RVO reported experiencing no symptoms of fatigue in the time leading up to the incident.

Automatic Train Control Mechanic #1

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. The video of the person involved was not available to ascertain whether signs of fatigue were present. The employee reported feeling fully alert at the time of the incident and reported experiencing no symptoms of fatigue in the time leading up to the incident.

Automatic Train Control Mechanic #2

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. The video of the person involved was not available to ascertain whether signs of fatigue were present. The employee reported feeling fully alert at the time of the incident and reported experiencing no symptoms of fatigue in the time leading up to the incident.

Automatic Train Control Mechanic #3

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. The video of the involved person was not available to ascertain whether signs of fatigue were present. The employee reported feeling fully alert at the time of the incident and reported experiencing no symptoms of fatigue in the time leading up to the incident.

Buttons Rail Traffic Controller

Safety Investigations evaluated signs and symptoms of fatigue that may have been present at the time of the incident. No signs or symptoms of fatigue were detected from the available data. The incident video was reviewed for signs of the Rail Traffic Controller's fatigue. No signs or symptoms of fatigue were evident from the video. The Rail Traffic Controller reported feeling fully alert and experiencing no symptoms of fatigue in the time leading up to the incident.

Radio Rail Traffic Controller

Safety Investigations examined signs and symptoms of fatigue that may have been present at the time of the incident. No video of the involved person was available to ascertain whether signs of fatigue were present. The Rail Traffic Controller reported feeling fully alert at the time of the incident. The Rail Traffic Controller reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

Rail Vehicle Operator

Safety Investigations evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The RVO reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the day shift in the days leading up to the incident. The employee was awake for eight hours and three minutes at the time of the incident. The employee reported eleven hours of sleep in the 24 hours preceding the incident. This was more than the employee's usual workday

sleep durations. The off-duty period was thirty-eight hours and seventy-five minutes which provides an opportunity for 7-9 hours of sleep. The employee reported no issues with sleep.

Automatic Train Control Mechanic #1

Incident data was evaluated for fatigue risk factors. There were no major risk factors for fatigue identified. The incident time of day (10:23 hours) does not suggest an increased risk of fatigue-related impairment. The employee worked day and overnight shifts in the days leading up to the incident. The employee reported a total of 7 hours of sleep in the last sleep period preceding the incident and was awake for 5.3 hours at the time of the incident. The off-duty period preceding the incident was 16 hours, which provided the opportunity for 7-9 hours of sleep. The employee reported usual workday sleep durations of 6 hours and no issues with sleep.

Automatic Train Control Mechanic #2

Incident data was evaluated for fatigue risk factors. There were no major risk factors for fatigue identified. The incident time of day (10:23 hours) does not suggest an increased risk of fatigue-related impairment. The employee worked day shifts in the days leading up to the incident. The employee reported a total of 8 hours of sleep in the last sleep period preceding the incident and was awake for 5.3 hours at the time of the incident. The off-duty period preceding the incident was 16 hours, which provided the opportunity for 7-9 hours of sleep. The employee reported usual workday sleep durations of 8 hours and no issues with sleep.

Automatic Train Control Mechanic #3

Incident data was evaluated for fatigue risk factors. The incident time of day (10:23 hours) does not suggest an increased risk of fatigue-related impairment. The employee worked day and overnight shifts in the days leading up to the incident. The employee's bed and wake times on the day preceding the incident could not be confirmed; therefore, the employee's total number of sleep hours in the sleep period preceding the incident and time awake at the time of the incident could not be determined. The employee, however, reported usual workday sleep durations of 8 hours. The off-duty period preceding the incident was 10 hours long which, given the employee's reported 1-hour commute, wouldn't have the opportunity for 7-9 hours of sleep. The employee reported no issues with sleep.

Due to unreliable sleep information, specifically bed and wake time information, the presence of fatigue risk factors contributing to the incident could not be thoroughly evaluated with a biomathematical modeling analysis.

Buttons Rail Traffic Controller

Safety Investigations evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Rail Traffic Controller reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the morning shift in the days leading up to the incident. The employee was awake for seven hours and three minutes at the time of the incident. The employee reported eight hours and twenty-five minutes of sleep in the 24 hours preceding the incident. This was a comparable amount of sleep to the employee's usual workday sleep durations. The off-duty period was fifteen hours and forty-five minutes which provides an opportunity for 7-9 hours of sleep. The employee reported no issues with sleep.

Radio Rail Traffic Controller

Safety Investigations evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Rail Traffic Controller reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the day shift in the days leading up to the incident. The employee was awake for six hours and thirteen minutes at the time of the incident. The employee reported eight hours and thirty minutes of sleep in the 24 hours preceding the incident. The off-duty period was sixty-three hours and sixty-six minutes which provides an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The employee reported no issues with sleep.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the RVO complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

WMATA's Drug and Alcohol Program determined that the Radio Rail Traffic Controller complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Findings

- Automatic Train Control Technicians were conducting Cab Signal testing and track circuit readings in the Train Control Room at C97 Junction.
- In conducting the tests, a track circuit was set to receive a speed of 55 mph.
- Train ID 433 departed from Van Dorn Street Station, picked up a speed command as it approached signal C97-12, and subsequently passed the signal, which was displaying a red.
- The RVO reported the red signal overrun; the RTC instructed them to continue to King Street Station.
- ATCM was conducting Cab Signal testing, and the SW1 was set to Normal instead of F9 or F10 while the jumpers were present on the extender card. This caused 55 MPH to be sent to Train ID 433 with a Red Signal at C97-12.
- The train traversed the interlocking, damaging Switch #1.
- The switch displayed out of correspondence; the ATC Technicians were instructed to perform an inspection.
- The ATC Technicians reported that the switch was trailed; a red signal overrun had occurred.
- The RVO was identified and removed service.
- The ATC Technicians replaced the switch.

Immediate Mitigation to Prevent Recurrence

- SAFE and RTRA collaborated to develop an RTRA Operations Personnel Notice, issued on June 21, 2024, to reinforce protocols for reporting operational discrepancies during train operations.
- Absolute blocks were promptly implemented at the C & J Junction.
- Automatic Train Control personnel suspended all 3005 testing activities until a comprehensive resolution was devised.
- The incident train remained out of service pending further investigation and resolution.
- Testing of track circuit adjustment procedures was executed to replicate the conditions that precipitated the incident.

- Signal Maintenance and Engineering conducted a Safety Stand Down session.
- Signal Maintenance and Engineering conducted tabletop review.
- Rail Supervisors conducted increased discussions with RVOs regarding existing policies and procedures in place to prevent Red Signal Overruns.
- Suspended PMI 1012 and discontinued cab level testing requiring jumpers.
- Complete a review of PMI 1012 and all similar maintenance procedures that require a jumper to be installed.
- De-couple the testing that requires jumpers such that these tests can be completed during non-revenue service.
- Review all associated training and determine if the training needs modification.
- Review communications procedures between maintenance crews and Metro Integrated Command and Communications Center (Rail Traffic Controllers and Maintenance Operations Center).
- MICC conducted tabletop reviews with both involved RTCs to evaluate future situations similar to this safety event.

Probable Cause Statement

The probable cause of the Red Signal Overrun event on June 20, 2024, at the C&J Junction, was due to extender boards used to perform tests that allowed for a logic override when the equipment was misconfigured. An additional causal factor was that the ATCM did not follow the procedures for conducting Cab Signal testing.

The probable cause of the damage to Switch #1 was the RVO's failure to identify the correct rail alignment. An additional causal factor was that the Button RTC failed to inform the Radio RTC of the last route established before the Radio RTC granted the RVO a permissive block.

Collaborative Correctives

Department of Safety

- A Hotwash discussion was conducted as part of the After-Action Review Program in collaboration with the Office of Emergency Preparedness and Safety Investigations. Representatives from Communications and Signaling, Car Maintenance, Rail Transportation, Metro Integrated Command and Communication Center, Safety, and Washington Metrorail Safety Commission were in attendance.
- Safety and Training personnel delivered a face-to-face RTRA Operations Safety Stand Down briefing to all Rail Vehicle Operators, highlighting "Safety Points to Adhere While Operating Rail Vehicles" (completed July 22, 2024)
- A Risk assessment was conducted in collaboration with the Office of Communication and Signal – (2) Red Hazards were identified. (Cab Signals fail to maintain train separation, and Cab Signals provide speed commands greater than design speeds).

Office of Safety Investigations

- Safety Investigation partnered with the Office of Rail Transportation in developing the RTRA Operations Personnel Notice RTRA-603-163-00 "Reporting Discrepancies While Operating Trains" (completed – June 21, 2024).

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
117794_SAFE_CAPS_SAFE_001	All Safety Investigators are to be trained in radio communication and response location familiarization.	SAFE OSI	Completed
117794_SAFE_CAPS_MICC_001	The Button RTC will attend a refresher training on their notification and oversight responsibilities of the railroad system.	MICC SRC	Completed
117794_SAFE_CAPS_MICC_002	The Radio RTC will attend a refresher training on their communication and oversight responsibilities of the railroad system.	MICC SRC	Completed
117794_SAFE_CAPS_MICC_003	Develop and implement added steps for the MOR, General Rules, sections 3.1 through 3.4 Observation of AIMS, Questions to Ask the RVO to Mitigate, Rail 2 notification, and Evacuate Customers from Incident Train. (MICC-ROC-PRO-3)	MICC SRC	Completed
117794_SAFE_CAPS_MICC_004	Develop and distribute a MICC Rail Section Red Signal Overrun Memorandum to Rail Section personnel.	MICC SRC	Completed
117794_SAFE_CAPS_MICC_005	Develop and distribute a Re-instruction MICC Managers Memorandum on Rail 2 Roles & Responsibilities.	MICC SRC	Completed
117794_SAFE_CAPS_MICC_006	Develop and distribute a Lesson Learned on the Red Signal Overrun event.	MICC SRC	Completed
117794_SAFE_CAPS_MICC_007	Conduct a tabletop review with both involved RTCs to evaluate future situations similar to this safety event.	MICC SRC	Completed
117794_SAFE_CAPS_COSI_001	Develop and implement a template/checklist for Cab Signal Testing.	COSI SRC	03/31/2025
117794_SAFE_CAPS_COSI_002	Signal Maintenance and Engineering conduct a Safety Stand Down session.	COSI SRC	Completed
117794_SAFE_CAPS_COSI_003	Establish Cab Signal Testing as a single testing procedure.	COSI SRC	Completed
117794_SAFE_CAPS_COSI_004	Develop and distribute an Engineering Bulletin.	COSI SRC	Completed
117794_SAFE_CAPS_RTRA_001	Conduct a face-to-face discussion, post, and distribute a "Reporting Discrepancies While Operating Trains" (update) RTRA Operations Personnel Notice to all Rail Vehicle Operators. (RTRA-603-163-01) *included observation of improperly aligned track switches.	RTRA SRC	Completed
117794_SAFE_CAPS_RTRA_002	Develop, distribute, and discuss RTRA Operations Safety Stand Down "Safety Points to Adhere While Operating Rail Vehicles."	RTRA SRC	Completed
117794_SAFE_CAPS_RTRA_003	Operational Personnel complete training on "Point and Call" – a systematic process of pointing and verbalizing; RVOs shall ensure that correct actions are taken at critical process points.	RTRA SRC	Completed

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
117794_SAFE CAPS_RTRA _004	The RVO will attend a Rail Alignment Refresher Training.	RTRA SRC	Completed
117794_SAFE CAPS_RTRA _005	Re-issue Rail Transportation Lesson Learned "Red Signal Overrun in the Yard" (RTRA-303-16-00).	RTRA SRC	Completed

Appendices

Appendix A – Interview Summaries

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.

RTRA

Rail Vehicle Operator

The RVO is a WMATA employee with 12 years of service and two months of experience as a RVO. The RVO holds a Roadway Worker Protection (RWP) Level 2 certification that expires in October 2024.

During the formal interview, the RVO stated that as they approached King Street Station and entered the tunnel, they went around a curve with speed commands. As they continued around the curve, they noticed the red signal (C97-12) but still had speed commands. They attempted to slow the train to a complete stop before the signal but realized that the train was not going to stop before the red signal.

The RVO stated they placed the train's master controller into emergency braking and came to a stop beyond the signal. After passing the red signal, the RVO stated they lost speed commands. They then notified the RTC that they lost speed commands and had already passed the signal. The Radio RTC instructed them to verify that they had passed the signal and gave them permission to continue operating to the next station.

The RVO stated they continued operating to the end of the line at Downtown Largo and took their meal break when they arrived. Following their break, they were operating towards Franconia Springfield Station when a Rail Supervisor removed them from service.

ATCM

Automatic Train Control Mechanic #1

The ATC Mechanic has worked for 20 years with WMATA. He previously held ATC Instructor and Supervisor positions. The ATC Mechanic stated they hold a Level 4 RWP, expiring in January 2025. The ATC Mechanic responded to fatigue assessment questions. The ATC Mechanic received no post-incident testing.

The ATC Mechanic stated that they received assignments from their supervisor by phone and email.

The ATC Mechanic stated that at approximately 9:30 a.m., they went to C97 on the day of the incident.

The ATC Mechanic stated that around 10 a.m., they received permission from Central. They were part of a group of three people who took the readings: one taking control panels, one writing down readings, and the ATC Mechanic taking the measurements. The measurements were logged in a book that stayed in the office.

When asked, the ATC Mechanic explained that the day's assignment was part of preventative maintenance, in which they tested track circuit readings performed monthly to ensure they were at the right tolerance level. They also ensured the circuit didn't drop train speed from 60 miles an hour to zero.

The maintenance work was performed during revenue time. There were no specifications regarding the presence or absence of trains. The requirement was to coordinate with Central to ensure they did not drop the circuit in front of the train.

The ATC Mechanic stated that measuring detection required dropping the circuit first, so they coordinated with Central. Afterward, they restored everything to normal.

The ATC Mechanic was asked what caused the circuit to have a 55-speed command. The ATC Mechanic stated that they heard later the operator say that the [operator] received 55 mph. The ATC Mechanic stated that they could not answer that question because, to their knowledge, they did not know how that could happen.

The ATC Mechanic was asked which PMI number was being performed. The ATC Mechanic replied that it was ATC 1012A. The ATC Mechanic explained that in the past, PMIs were performed together; however, they were performed separately: one for taking the measurements and another for circuit verification.

The ATC Mechanic explained the measurement process. The cart was placed on the extender board, but no codes were sent. The readings were taken from two different frequencies using the set procedures involving speed command frequencies.

When asked, the ATC Mechanic stated that no 3005 PMI was performed, not adjusting any tracks.

When asked if they were familiar with any alarms that went off for a red signal run, the ATC Mechanic stated that they needed clarification and were unfamiliar with it. When asked if there were any indications in the room, such as something flashing for a red signal, the ATC Mechanic stated that they were not aware of any such indications.

The ATC Mechanic was asked what specific circuits they were working on when the train passed C97 and the red signal violation occurred. They replied that they worked on J1-516, completing it. The next one was J1-543, but they didn't complete it because Central stopped them, stood by, and restored them to normal.

The ATC Mechanic explained the procedures for entering the TCR and contacting Central.

Automatic Train Control Mechanic #2

The ATC Mechanic has worked for approximately 15 years with WMAT/ATC. They held their current position for the past three years. The ATC Mechanic worked previously at CTF.

The ATC Mechanic stated they hold a Level 4 RWP, expiring in February 2025. The ATC Mechanic responded to fatigue assessment questions. The ATC Mechanic received no post-incident testing.

When asked, the ATC Mechanic explained that they were part of a three-person team at the C97 location.

The ATC Mechanic explained that two trains (blue and yellow) passed their work location. The Yellow Line train was coming from Huntington, and the Blue Line train was coming from

[unintelligible]. The Yellow Line train reached the C14 platform, and the Blue Line train was coming close to the C98.

The ATC Mechanic stated they were located at J1-560, so they told the two other guys that the Blue Line train was approaching. The ATC Mechanic stated that the two guys acknowledged ("OK, OK") regarding the train, and they stopped working. The ATC Mechanic was on the opposite side, watching the control panel to see trains coming. They did not have local control.

The ATC Mechanic stated that around 10:35 a.m., they saw switch one, which allowed a normal call, and told RWIC about it.

The ATC Mechanic stated they were inside the TCR room and not allowed to go outside. They informed RWIC, "The panel switch one is a normal out."

When asked, the ATC Mechanic stated that they did not see any signal or alarm on the panel and that they might notice a red signal violation.

Automatic Train Control Mechanic #3

The ATC Mechanic has worked for approximately 14 years with WMAT/ATC and is currently assigned to the Alexandria Division. The mechanic previously worked at C99.

The ATC Mechanic holds a Level 4 RWP, expiring February 2025. The mechanic responded to fatigue assessment questions and received no post-incident testing.

When asked, the ATC Mechanic confirmed their called ID number and that they were the RWIC at the time of the incident. The ATC Mechanic explained that arriving at 9:45 a.m. at C97, they were given permission to collect readings at the TCR. The ATC Mechanic contacted MOR/Central, requesting permission.

The ATC Mechanic stated that as the RWIC, they assigned their roles for reading, documentation, and observation. The ATC Mechanic voluntarily took the role of writing down readings. The observation role was to look for trains.

The ATC Mechanic completed their work prior to the incident. They completed work, but they were informed of a train approaching in 3 minutes; they stopped and put everything back to stand by and stand clear.

The ATC Mechanic stated they had enough to return everything to normal when trains were approaching. They put everything back, including the extender, to stand by and stand clear because the train was about to approach in 3 minutes.

The ATC Mechanic provided conflicting responses, first stating that they had enough time and then saying that they needed more time to finish before the train approached at the time of the incident. They only completed measurements with the extender. The ATC Mechanic added that the document (C99 document one at TCR) will show what was completed and not completed.

The ATC Mechanic was asked what would happen if they were not able to put everything back before the train got to their location, not having enough time. The ATC Mechanic agreed with the scenario that the train would get zero speed command and would stop by dropping the circuit in front of it. The ATC Mechanic replied that they never experienced that situation.

The ATC Mechanic was asked why the 503-track circuit gave the 55-speed command. The ATC Mechanic stated that they did not know anything about it.

The ATC Mechanic was asked if the panel board indicating the status of the train's approach received PMI or any inspection. They replied that no PMI or inspections were performed or the procedures. There is no indication of the train passing a red signal on the panel. The ATC Mechanic believed such a situation was "hazardous," and the engineering would know.

MICC

Button Rail Traffic Controller

The Button Rail Traffic Controller (RTC) is a WMATA employee with 19 years of service and nine years of experience as an RTC. The RTC holds a Roadway Worker Protection (RWP) Level 4 certification that expires in December 2024.

During the formal interview, the Button (RTC) stated they were dispatching Yellow Line trains from Mount Vernon Station when the Radio RTC asked them what the RVO said. They advised the Radio RTC to ask the RVO to repeat their transmission.

The Button RTC stated that the RVO reported lunar/red no-speed commands, and the Radio asked what they should do. The Button RTC advised the Radio RTC to ask if the RVO passed the signal. The Radio RTC repeated the request to the RVO, who stated the same thing, that they had already passed the signal and had no speed commands.

The Button RTC stated they instructed the Radio RTC to give the RVO a permissive block to the station.

The Button RTC stated that when they learned that the train overran the red signal, it was on OPS 2. They saw that switch 1 was out of correspondence. They dispatched ATCM personnel to the switch and began turning trains back in the opposite direction at various locations.

The Button RTC stated they checked for a red signal overrun alarm on the AIMS but were unsuccessful in finding it.

The Button RTC stated that the automatic signaling was not on at C97-12. They stated that ATCM was working in the TCR at C97.

Radio Rail Traffic Controller

The Radio Rail Traffic Controller (RTC) is a WMATA employee with 14 years of service and a week of experience as an RTC. The RTC holds a Roadway Worker Protection (RWP) Level 4 certification that expires in January 2025.

During the formal interview, the Radio (RTC) stated that several things were occurring just prior to the incident. Track walkers were on the roadway, speed couplers slowed, and trains were being given permissive blocks between Naylor Road and Suitland Station.

The Radio RTC stated they asked the RVO to repeat their transmission after hearing them say they ran a red signal with speed commands, but at the time of notification, they did not have speed commands. They requested confirmation from the RVO if they were past the C97-12 signal.

The Radio RTC stated that the RVO confirmed they were stopped beyond the signal and that the Button RTC advised them to give the RVO a permissive block to King Street Station.

The Radio RTC stated they gave the RVO a permissive block and did not verify the AIMS alarms but did notice the switch was out of correspondence.

Assistant Operations Manager

During the formal interview, the Assistant Operations Manager (AOM) stated they were informed verbally while standing near the Buttons RTC that switch 1 was out of correspondence at the C97-12 signal. They instructed the Button RTC to exercise.⁴ the switch to resolve the problem. The AOM stated that a single track operation was implemented. ATCM was dispatched to the switch and reported that they were unable to crank it into position.

The AOM stated that upon further investigation, a train had overrun a red signal and was given a permissive block to King Street Station. During the review of the AIMS playback, they learned that the red signal overrun alarm was activated.

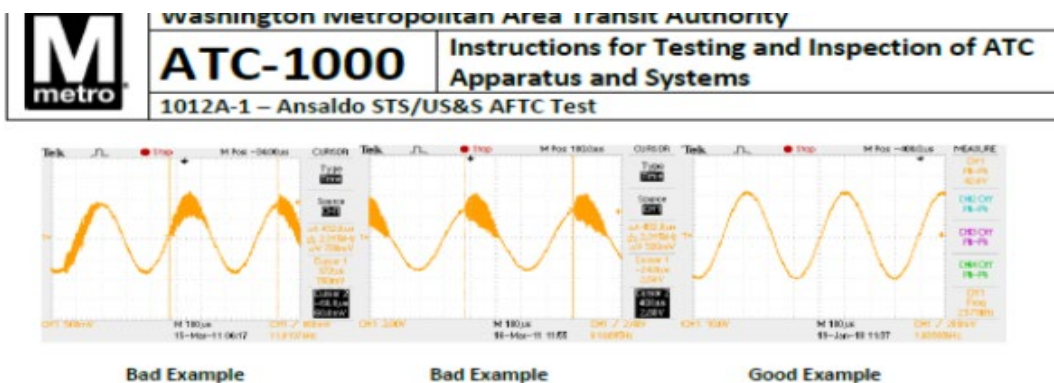
Operation Manager

During the formal interview, the Operation Manager (OM) stated that while working with Metro 1, they noticed switch 1 out of correspondence and requested the Button RTC to exercise the switch. ATCM personnel were dispatched to the switch, and trains began to single track.

The OM stated that the ATCM reported that the switch was trailed and that the red signal overrun alarm was possibly acknowledged by the RTC before they could notice it on their AIMS screen.

⁴Cycling a switch between a normal and reverse position.

Appendix B – 1012A-1 Ansaldo STS/US&S AFTC Test



1012A – 1 - Figure 1: Examples of good and bad wave measurements



IMPORTANT NOTE: If the readings are outside of tolerance, take corrective actions to repair. If the readings are unable to be corrected and the track circuit is unable to be verified with a soft shunt, turn the track circuit off and notify ATC supervision.

Procedure



WARNING: In order to prevent damage to circuit components, always remove power to the track circuit modules before removing or inserting the card file PCB's – remove power via the On/Off switch or by removing the feed fuse for the module under test. DO NOT disconnect the power source plug couplers under load, as damage to the terminal pins and sockets may result.

1 Initial Set-up

- 1.1 Verify that the traffic is established in the Normal direction.
- 1.2 Turn off the adjacent track circuits to obtain a steady signal (free of interference). Additional adjacent track circuit transmitters may need to be turned off to eliminate unwanted/interfering signals.
- 1.3 Remove power to the module under test. Remove and install the Power Amplifier PCB (slot 2 or 9) on to an Extender PCB, then re-install the board.
- 1.4 Return power to module under test.

2 Transmitter

- 2.1 Install a SLOW speed restriction (if applicable) for the track circuit transmitter under test.
- 2.2 Set the Power Amplifier PCB switch to the steady-track carrier frequency position by moving the rotary switch SW1 to "TRK" position (1012A – 1- Figure 7A) for the Power Amplifier PCB in slot 2 or 9.

Revised
09/13/2023

ATC-1000 Revision 5.2
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Figure 5 – 1012A Instruction for Testing and Inspection of ATC Apparatus and Systems (page 1 of 2).

- 2.3 * Using an oscilloscope, measure and record the track carrier Tx peak-to-peak voltage level at the Yellow/Yellow test points on the Power Amp PCB (1012A – 1- Figure 7A). If the values are out of tolerance, take corrective action.
- 2.4 * Record the transmitter's track power level setting – SW3 on the Power Amp PCB (1012A – 1- Figure 7A).
- 2.5 * Measure and record the train detection frequency at the Yellow/Yellow test points on the Power Amp PCB. The frequency must be within the upper and lower limits for the designated frequency (F1 – F8 as specified in 1012A-1TABLE -1). *If the frequency is out of range, replace the associated Oscillator Card.*
- 2.6 Restore switch SW1 to the NORMAL position.
- 2.7 Remove power to module under test.
- 3 Cab Signal Level
- 3.1 On the Extender PCB, install the test jumper between pins 1 and 6 to enable the F9 cab (4550 Hz) and re-apply power to the module under test (Refer to 1012A – 1- Figure 8A and 8B).
- 3.2 Set the Power Amplifier PCB switch SW1 to "F9" position (Refer to 1012A – 1- Figure 7A) for the Power Amplifier PCB in slot 2 or 9.
- 3.3 * Using an oscilloscope, measure and record the F9 train carrier TX peak-to-peak voltage level at the Yellow/Yellow test points on the Power Amp PCB.
- 3.4 * Record the transmitter's train power level setting – SW2 on the Power Amp PCB (Refer to 1012A – 1- Figure 8B).
- 3.5 * Measure and record the F9 train carrier frequency at the Yellow/Yellow test points on the Power Amp PCB. The frequency must be within 4530Hz – 4570Hz. If the frequency is out of range, replace the associated Oscillator Card.
- 3.6 Remove power to the module under test.
- 3.7 On the Extender PCB, move the test jumper to pins 1 and 3 to enable the F10 cab (5525 Hz) (Refer to 1012A – 1- Figure 8A and 8B.)
- 3.8 Set the Power Amplifier PCB switch SW1 to "F10" position (Refer to 1012A – 1- Figure 8A) for the Power Amplifier PCB in slot 2 or 9.
- 3.9 Restore power to the module under test.
- 3.10 * Using an oscilloscope, measure and record the F10 train carrier TX peak-to-peak voltage level at the Yellow/Yellow test points on the Power Amp PCB.
- 3.11 * Record the transmitter's train power level setting – SW4 on the Power Amp PCB (Refer to 1012A – 1- Figure 8B).

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09/13/2023

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Figure 6 - 1012A Instruction for Testing and Inspection of ATC Apparatus and Systems (page 2 of 2).







RTRA OPERATIONS PERSONNEL NOTICE

Tuesday, July 02, 2024

RTRA-603-163-01

Reporting Discrepancies While Operating Trains (Updated)

Remaining observant and identifying signal aspects is vital to the safe movement of trains. Rail Vehicle Operators should report any conflicting information between what is identified on the train console and what is displayed on the signaling system. If you notice any anomalies while operating rail vehicles, **to include improperly aligned switches for your direction of travel**, immediately stop and report the discrepancy to the Metro Integrated Command and Communications Center (MICC).

Signal Name	Signal Indication	Signal Aspect
Stop Signal	Stop.	
Yellow-Caution	Caution: In approach of an interlocking signal displaying a red aspect. Reduce speed to no more than five (5) miles per hour when passing the repeater signal. Be prepared to stop no closer than 10 feet in advance of the interlocking signal.	
Steady Lunar	Train in approach of an interlocking signal displaying a lunar aspect	
Flashing Lunar	Train in approach to an interlocking signal displaying a flashing lunar aspect (diverging route).	
Mainline	Maintain operation under cab signals	
Yard	Proceed, not to exceed the posted speed limit or 15 mph, whichever is less.	

Metrorail Operating Rulebook (MOR)


3.4.1: "Rail vehicles shall not be operated through improperly aligned track switches."

3.4.2: "If a rail vehicle runs through an improperly aligned track switch, the Rail Vehicle Operator shall stop the vehicle immediately, and report the occurrence to the Rail Traffic Controller or the Interlocking Operator. All parties shall treat the situation as if the vehicle has derailed, and the vehicle shall not be moved. Subsequent movement of the affected rail vehicle shall not be undertaken until investigated and determined to be safe by authorized personnel."

4.1.1: "When there is a conflict between any groups of signals (fixed, cab, speed readouts, flagging, portable), Rail Vehicle Operators shall be governed by the most restrictive indication and shall immediately inform the Rail Traffic Controller of the conflict."

Feel free to contact a Rail Operations Supervisor or an RTRA Division Manager if there are questions or concerns regarding the contents within this notice.

Thank you and please be safe.



To report a potential safety risk, please scan the QR code or use this link: tinyurl.com/ReportRisks

Electronic devices shall only be used in designated areas and in accordance with the WMATA Electronic Device Policy.

Figure 7 - RTRA Operations Personnel Notice RTRA-603-163-01 page 1 of 1.



RTRA OPERATIONS SAFETY STAND DOWN

Monday, July 22, 2024

RTRA-101-01-00

Safety Points to Adhere While Operating Rail Vehicles

As Rail Vehicle Operators, you are profoundly responsible for the safety of yourselves and our customers. Running a red signal is not just a violation but a potentially catastrophic risk that can lead to accidents, injuries, and loss of life.

A red signal means a stop. It indicates that crossing the signal could lead to a collision with another Rail Vehicle or pose a danger to co-workers and infrastructure. Ignoring a red signal compromises the entire signaling system's integrity and safety.

Remember that Stop and Proceed actions remove the automatic train protection mechanisms used to keep trains apart and prevent collisions. When you use Stop and Proceed, you're removing the system protections and must be vigilant of your surroundings. Most red signal overruns occur after an operator enters Stop and Proceed mode and forgets they're not protected.

Please be mindful and remember the following safety points:

- Always approach signals with caution and be prepared to stop.
- Obey the signal indication regardless of familiarity with the route or schedule.
- Maintain a safe distance from the signal to ensure a complete stop if required. Report any malfunctioning signals immediately to the MICC.
- Use Point and Call to verify a lunar signal, correct rail alignment, and speed commands before moving.
- Repeat-back must be fully understood and acknowledged.
- Contact the MICC to obtain a permissive or absolute block before initiating Stop and Proceed.
- Always maintain situational awareness; if something doesn't look right, report it to the MICC immediately. This includes objects in the roadway and adverse environmental conditions.
- Follow the MICC's instructions after reporting adverse conditions, including not operating your train through smoky conditions and turning off your train's EV system.

And as a reminder, MOR General Rule 1.1.2 states, "Customer safety is the responsibility of every WMATA employee; however, Rail Vehicle Operators have the ultimate and final responsibility for the safety of the customers on their trains. If any Rail Vehicle Operator is instructed by any person, regardless of rank, title, or position, to take any action which would adversely affect the safety of customers, the Rail Vehicle Operator shall stop the train, notify Rail Operations Control Center or the Interlocking Operator, and shall not continue until satisfied that it is safe to do so."

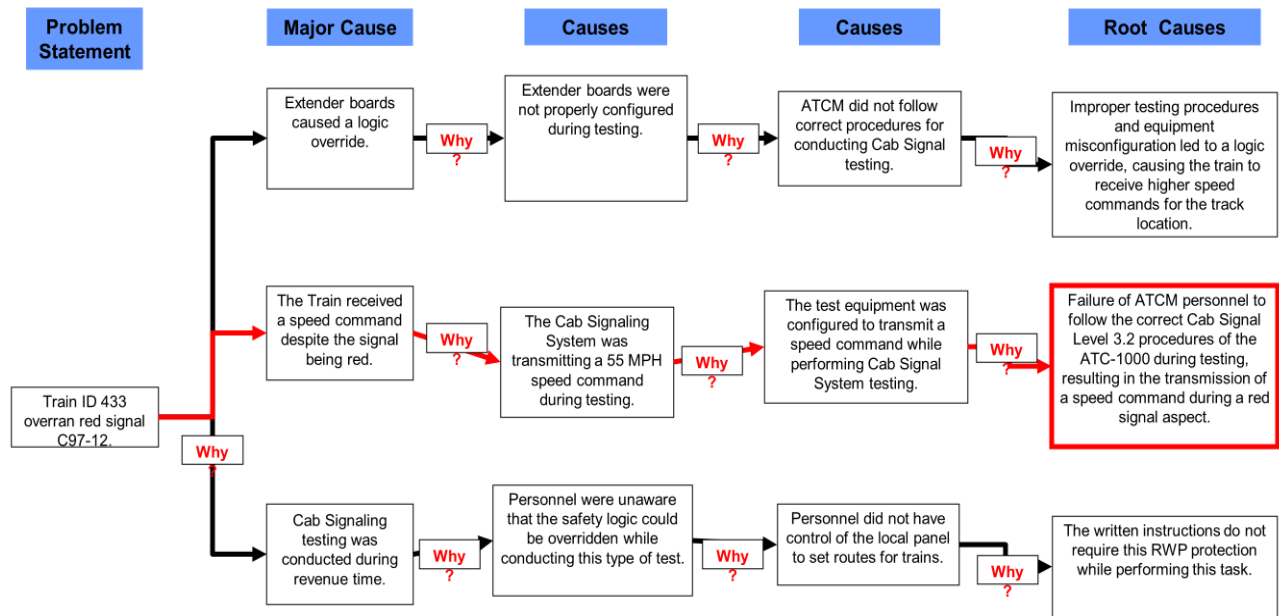
Operations managers, along with SAFE personnel, will be in the system to conduct increased discussions regarding this matter and to address any questions or concerns.

Thank you and please be safe.



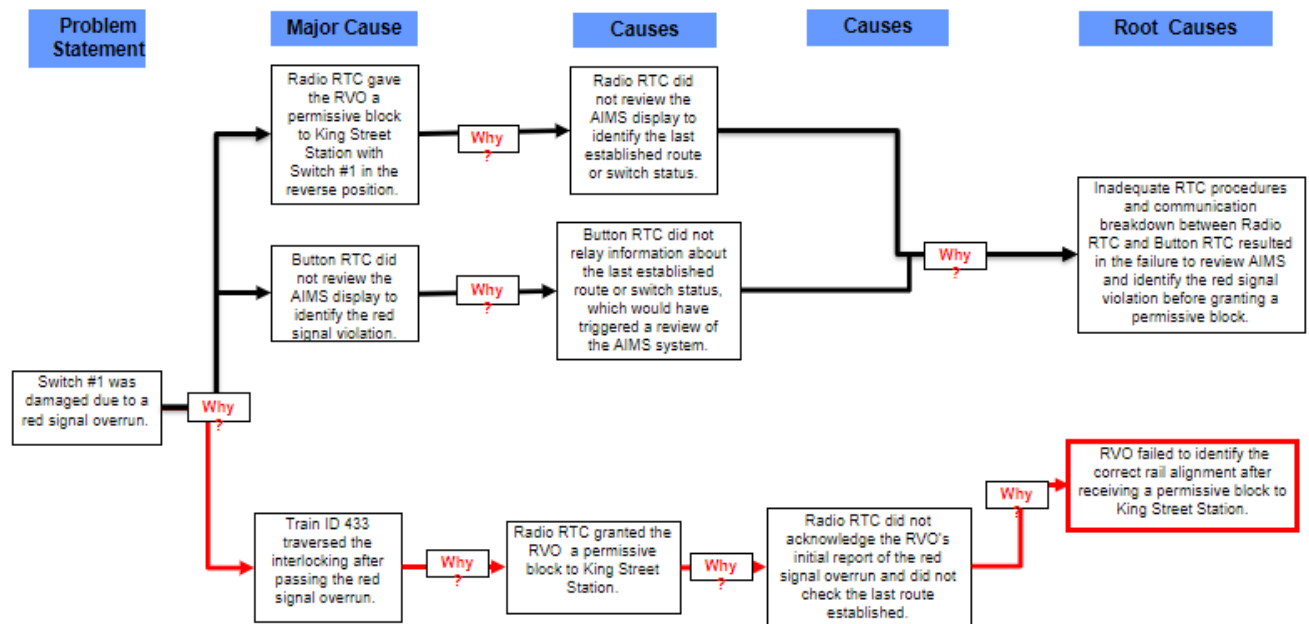
Figure 8 – RTRA Operations Safety Stand Down.

Appendix E – Why-Tree Analysis



Root Cause Analysis

Figure 9 – Root Cause Analysis (page 1 of 2).



Root Cause Analysis

Figure 9 - Root Cause Analysis (page 2 of 2).



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

FINAL REPORT OF INVESTIGATION A&I E24560

Date of Event:	July 16, 2024
Type of Event:	O-8, Red Signal Overrun
Incident Time:	13:01 hours
Location:	Signal B99-16, Chain Marker (CM) B1 114+60
Time and How received by SAFE:	13:38 Hours, WMSC Notification by Telephone
WMSC Notification Time:	10:30 Hours, July 19, 2024
Responding Safety Officers:	WMATA: None WMSC: None Other: None
Rail Vehicle:	Train ID 143 (L3200/01x3255/54x3123/22x3160/67T)
Injuries:	None
Damage:	None
Emergency Responders:	None
SMS I/A Incident Number:	20240722#118541

Signal B99-16, CM B1-114+60 – Red Signal Overrun

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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July 16, 2024

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Abbreviations and Acronyms

AIMS	Advanced Information Management System
ARS	Audio Recording System
ATC	Automatic Train Control
ATCM	Office of Automatic Train Control Maintenance
ATCS	Automatic Train Control Section
CM	Chain Markers
CCTV	Closed-Circuit Television
DAP	Disciplinary Administrative Program
DTS	Data Transmission System
IO	Interlocking Operator
ITS	Information Technology Services
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OM	Operations Manager
OSI	Office of Safety Investigations
ROCS	Rail Operations Computer System
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
RTU	Remote Terminal Unit
SAFE	Department of Safety
SMS	Safety Measurement System
TRST	Office of Track and Structures

WMATA

Washington Metropolitan Area Transit Authority

WMSC

Washington Metrorail Safety Commission

VDMS

Vehicle Monitoring and Diagnostic System

Washington Metropolitan Area Transit Authority
Department of Safety – Office of Safety Investigations

Executive Summary

**Note that all times listed are approximate and may contain minor variations due to differences between systems of record. **

On Tuesday, July 16, 2024, at 13:38 hours, the Washington Metropolitan Safety Commission (WMSC) notified the Director of Safety Investigations of a possible Red Signal Overrun at signal B99-16 between NOMA Station and Rhode Island Avenue Station. The Metro Integrated Command and Communications Center (MICC) was notified at 13:59 hours.

Prior to the event, at 12:01 hours, the MICC reported an intermittent (bobbing) series of Remote Terminal Unit (RTU) outages system-wide, affecting remote train monitoring. The RTU provides remote control and monitoring of devices or systems that are impractical to control or monitor directly. Communication is a central component of the RTU system design and implementation. Messages are communicated on physical media using defined signal types and levels.

The Audio Recording System (ARS) revealed that at 12:49 hours, Train ID 143 was granted permission to allow personnel to exit the train at the Brentwood Yard northbound stop. At 12:53 hours, the Rail Vehicle Operator of Train ID 143 reported that they were located near Brentwood Yard and approaching Rhode Island Avenue Station on track 1. The train did not have speed commands. The Radio Rail Traffic Controller (RTC) granted a permissive block to Rhode Island Avenue Station.

During the interview with the Rail Vehicle Operator, they confirmed that signal B99-16 was displaying a red aspect when they moved the train.

Automatic Train Control Maintenance (ATCM) personnel were dispatched to inspect switches on track 1 and determined there was no damage.

The Rail Vehicle Operator was not removed from service due to the delay in the identification of the red signal overrun and the operator had departed for the day. An Office of Rail Transportation (RTRA) Supervisor made attempts to contact the Rail Vehicle Operator, who requested assistance from their shop steward before being interviewed. The Rail Vehicle Operator was placed in a non-operational status on their return until interviewed by RTRA Management from Shady Grove Division. The train was removed for Post Incident Inspection.

The probable cause of the red signal overrun event on July 16, 2024, by Train ID 143 at signal B99-16 near Brentwood Yard, was the Rail Vehicle Operator's failure to verify a lunar aspect prior to moving the train. A contributing factor was the Rail Vehicle Operators' lack of situational awareness and continuous failures of the RTU's.

Incident Site

B99-16 signal, CM 114+60

Field Sketch/Schematics

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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- Rail Vehicle Operator 30-day Work History
 - Rail Vehicle Operator Certification
 - Maximo Work Orders
 - RTRA Managerial Incident Investigation Report
 - Rail Vehicle Operator Incident Report
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback, including OPS 1 Radio and Phone.
 - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Vehicle Monitoring and Diagnostic System (VMDS)

Investigation

On Tuesday, July 16, 2024, at 13:38 hours, the Washington Metropolitan Safety Commission (WMSC) notified the Director of Safety Investigations of a possible Red Signal Overrun at signal B99-26 near Brentwood Yard. The MICC was notified at 13:59 hours.

Prior to the possible event, at 12:01 hours, the MICC reported an intermittent (bobbing) series of RTU outages throughout the system, affecting various remote location's train monitoring.

AIMS is the rail system software that allows MICC personnel to manage all rail line traffic, traction power devices, and station equipment by receiving information from the field, processing it, and displaying it.

The RTU provides remote control and monitoring of devices or systems that are impractical to control or monitor directly. Communication is a central component of the RTU system design and implementation. Messages are communicated on physical media using defined signal types and levels.

During the interview, the Radio RTC stated that they had experienced a Code 34¹. An actual Code 34 was not declared by the MICC. The scope of the RTUs being offline was 9 RTUs at 13:00 hours.

The RTUs routinely revert to an offline status that either restores automatically or by manual resetting. This intermittent status was resolved by resetting of the RTUs involved. Data provided for the six-month period of February to August 2024, by the Senior Manager of Operations IT indicated 10,351 incidents of the RTUs being in a failed state where communication of data was not possible. The majority of these events were intermittent and self-restored within seconds. The Senior Manager of Operations IT stated it was determined the RTU's are outdated, and the department has not identified a timeline in which new RTU's will be installed. However recently the IT Department has tested a new software program called Wabtec which it aimed to minimize RTU disruptions. This software was tested on November 26, 2024, and will be installed on Friday, November 28, 2024.

¹ The term is used in response by the MICC for a situation characterized by a failure of the Rail Operations Computer System (ROCS) or a large section of the Data Transmission System (DTS) and during which the MICC is unable to remotely control and monitor the system for ten minutes. A Code 34 is declared by the MICC Operations Manager (OM). During Code 34, local interlocking control panels are staffed by Automatic Train Control Section (ATCS) technicians and Office of Rail Transportation (RTRA) supervisors until the system is restored.

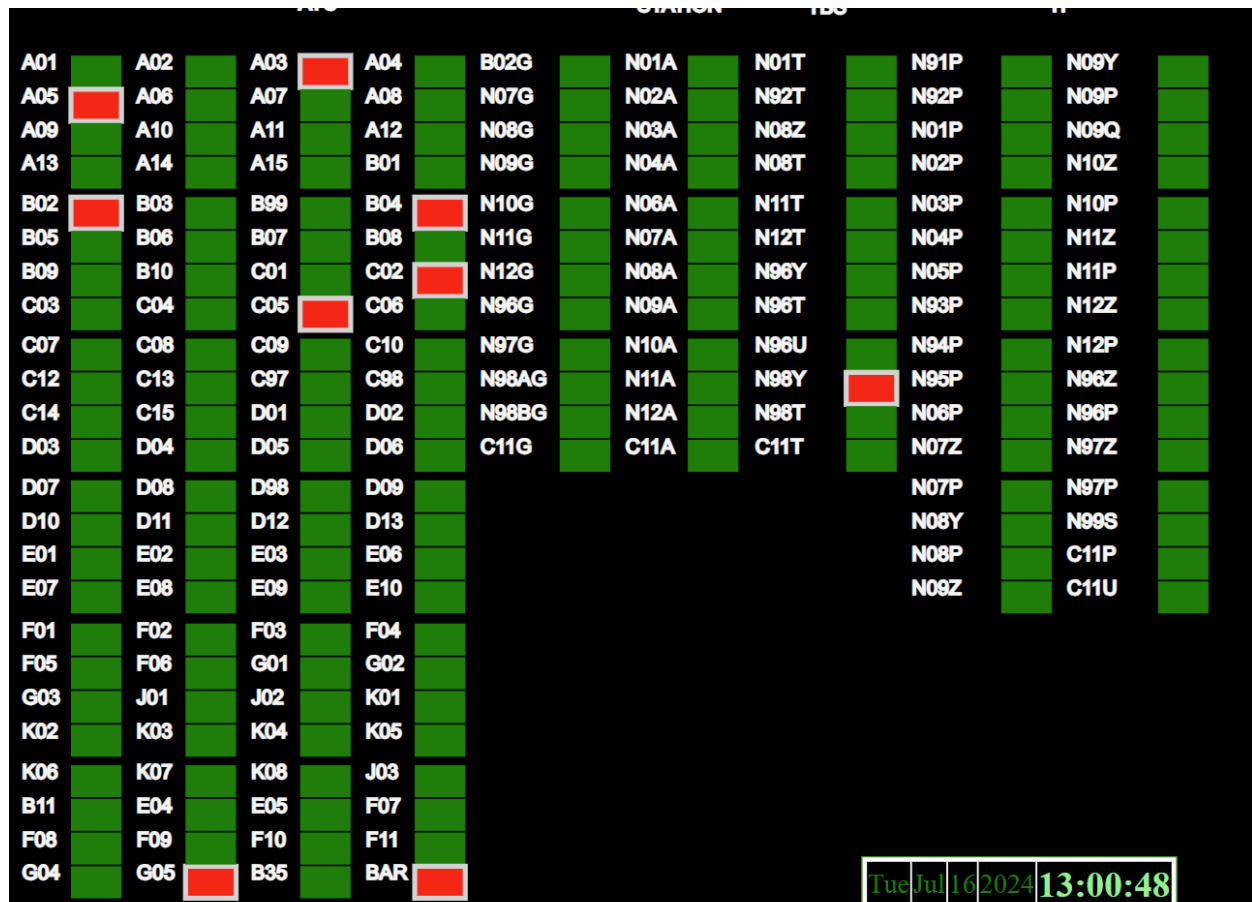


Image 1 – RTU Dashboard 20240716 13:00 hours with red status off-line indication.

At 12:37 hours a Maximo request #8775778 was created regarding multiple RTUs intermittently displaying on and off indications at A02, A03, B99, B02, B03, B04, B06, C02, C05, D02, and G05. The initial Maximo request that identified the responsibility code changed from Automatic Train Control (ATC) to Information Technology Services (ITS) reflecting the issue was caused by an IT Code 34 was noted on July 17, 2024. At 16:31 hours, the Maximo request status indicated that ATC had reset all the affected RTUs.

The ARS revealed that at 12:49 hours, Train ID 143 was granted permission to allow personnel to exit the train at the Brentwood Yard northbound stop. At 12:53 hours, the Rail Vehicle Operator of Train ID 143 reported that they were located near Brentwood Yard and approaching Rhode Island Avenue Station on track 1. The train did not have speed commands. The Radio Rail Traffic Controller (RTC) granted a permissive block to Rhode Island Avenue Station.

After the Rail Vehicle Operator advised that they were not located at Rhode Island Avenue Station, they informed the Radio RTC that they were located near Chain Marker (CM) B1 119+00. The Radio RTC inquired if signal B99-26 was lunar. The Rail Vehicle Operator responded that they had not reached signal B99-26.

The Radio RTC granted Train ID 143 a permissive block to signal B99-16, then advised the Rail Vehicle Operator to continue with a lunar aspect to the Brentwood Yard northbound stop. The Rail Vehicle Operator reported that signal B99-16 was displaying a red aspect. The Radio RTC granted a permissive block to signal B99-16 red and permission to utilize the route selector box.

At 12:58 hours, the Rail Vehicle Operator advised that they were located at signal B99-26 red. At 12:59 hours, the Radio RTC announced all trains that were located at a red signal to hold. The Rail Vehicle Operator inquired if they were given a permissive block, to which the Radio RTC instructed the Rail Vehicle Operator not to pass a red signal.

The Button RTC contacted the Interlocking Operator (IO) at Brentwood Yard and requested the ATCM personnel to respond to signal B99-26. The IO reported that they observed on the interlocking board that the train had passed signal B99-26 lunar, and the train could continue to Rhode Island Avenue Station.

At 13:01 hours, the Radio RTC continued to identify the exact location of Train ID 143. The Rail Vehicle Operator reported that they were relocated at CM B1 130+00 and advised that they had passed the signal because they were given a permissive block to the northbound platform stop.

At 13:04 hours, the Radio RTC instructed Train ID 143 to continue to Rhode Island Avenue Station after the Brentwood Yard IO advised that they observed all the signals displaying a lunar on the interlocking board.

At 13:38 hours, the WMSC notified the Office of Safety Investigations (OSI) of a possible Red Signal Overrun at signal B99-26 near Brentwood Yard. OSI immediately conducted an internal investigation of the report. After reviewing the audio, multiple systems of record, the fact that the possible event occurred involving a legacy train that is not outfitted with video, and with the AIMS and RTU being offline, the red signal overrun could not be validated. An update was then provided to the WMSC.

OSI personnel collaborated with the MICC to review all available information to determine if a red signal overrun had occurred. They reviewed audio and available AIMS playback data. The overrun could not be verified, but it was clear that there was confusion about Train 143's movement.

The Rail Vehicle Operator was not removed from service due to the delay in the identification of the red signal overrun and the operator had secured for the day. An RTRA Supervisor made attempts to contact the Rail Vehicle Operator, who requested assistance from their shop steward before being interviewed. The Rail Vehicle Operator was placed in a non-operational status on their return until interviewed by RTRA Management from Shady Grove Division. The train was removed for Post Incident Inspection.

An interview was scheduled and conducted with the operator. During the interview, the Rail Vehicle Operator confirmed that signal B99-16 was displaying a red aspect when they moved the train past it.

Chronological Event Timeline

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

Time	Description
12:01:00 hours	The MICC Rail Section reported an Advance Information Management System outage system-wide affecting remote train monitoring. [Email]

Time	Description
12:49:48 hours	<u>Train ID 143</u> : Advised the Radio RTC that they were dropping personnel off northbound with proper PPE. <u>Radio RTC</u> : Acknowledged. [Radio Ops1]
12:51:09 hours	<u>Train ID 141</u> : Reported located at the Route Selector Box at B99-06. <u>Radio RTC</u> : Granted permission to utilize the Route Selector Box. <u>Train ID 141</u> : Advised having a lunar, correct rail alignment and speed commands. [Radio Ops1]
12:53:30 hours	<u>Train ID 143</u> : Reported approaching Rhode Island Avenue/Brentwood, and no speed commands. <u>Radio RTC</u> : Responded what's your location. <u>Train ID 143</u> : Advised in approaching Rhode Island Avenue/Brentwood on track 1. <u>Radio RTC</u> : Acknowledged. Instructed to verify that the platform was clear, then granted a permissive block to the 8-car marker. <u>Train ID 143</u> : Advised that they had not reached the northbound drop-off and were not at the platform. <u>Radio RTC</u> : Inquired where they were located and requested a chain marker. <u>Unknown Rail Vehicle Operator</u> : Responded that the train was "outside 26". <u>Radio RTC</u> : Acknowledged. Inquired if 26 was lunar. <u>Train ID 143</u> : Responded 119+00. <u>Radio RTC</u> : Acknowledged. Inquired if the signal was lunar [Radio Ops 1]
12:55:47 hours	<u>Train ID 143</u> : Responded, "I can't see it. I'm on the curve. I haven't gotten to the signal." <u>Train ID 145</u> : Reported located at Noma Station on track 1 and advised that the train had just passed the B99-06 signal. <u>Radio RTC</u> : Acknowledged. Granted a permissive block to B99-16, lunar and speed commands continue to the northbound. <u>Train ID 143</u> : Acknowledged. [Radio Ops 1]
12:57:01 hours	<u>Train ID 143</u> : Reported B99-16 red. <u>Radio RTC</u> : Granted a permissive block to B99-16 red, with permission to use the route selector box. <u>Train ID 143</u> : Acknowledged. [Radio Ops 1]
12:58:59 hours	<u>Radio RTC</u> : Inquired the location of Train ID 143. <u>Train ID 143</u> : Responded B99-26. <u>Radio RTC</u> : Acknowledged. Inquired if the signal was lunar. <u>Train ID 143</u> : Responded, "It's red." <u>Radio RTC</u> : Acknowledged. [Radio Ops 1]
12:59:33 hours	<u>Radio RTC</u> : Instructed all trains located at red signals to hold. [Radio Ops 1]
13:00:52 hours	<u>Train ID 143</u> : Inquired if they were given a permissive block to the northbound. <u>Radio RTC</u> : Advised not to pass a red signal. [Radio Ops 1]
13:01:12 hours	<u>Radio RTC</u> : Instructed to hold B99-26 until they get a lunar. <u>Train ID 143</u> : Acknowledged. [Radio Ops 1]

Time	Description
13:01:50 hours	<u>Button RTC</u> : Contacted Brentwood Tower and requested ATC. <u>Brentwood Tower</u> : Inquired about the problem. <u>Button RTC</u> : Advised a Code 34, and ATC was needed at B99-26, requested a lunar at 26 to 28. <u>Brentwood Tower</u> : Advised that Train ID 143 passed signal 26 on the board and that the train should continue because the signal was lunar. Advised that everything on the board was lunar. <u>Button RTC</u> : Acknowledged. [Phone Ops1]
13:03:01 hours	<u>Radio RTC</u> : Requested a chain marker. <u>Train ID 143</u> : Responded, B1 130+00. <u>Radio RTC</u> : Inquired if they passed B99-26. <u>Train ID 143</u> : Responded, "I'm right here at the signal. You gave me a block to the northbound." <u>Radio RTC</u> : Responded, "So you're facing the signal?" <u>Train ID 143</u> : Responded, The signal is right behind me." <u>Radio RTC</u> : Responded, "If it's behind you, you passed the signal." <u>Train ID 143</u> : Responded, "I'm past the signal because you gave me a block to the northbound." [Radio Ops1]
13:03:47 hours	<u>Radio RTC</u> : Inquired, "When you went to the route selector box, did you get a route through 26? Was 26 lunar when you went through it?" <u>Train ID 143</u> : Responded, "That's a negative." [Radio Ops 1]
13:04:14 hours	<u>Radio RTC</u> : Stated, "So everything was lit up lunar? Okay, permissive block to the northbound with speed commands continue." <u>Train ID 143</u> : Acknowledged. [Radio Ops 1]
13:38:00 hours	WMSC notified Safety Investigations of a possible Red Signal Overrun. [Phone]
13:48:26 hours	<u>ATC</u> : Advised the Button RTC that they were resetting the RTU at B99. <u>Button RTC</u> : Acknowledged and granted permission. [Phone Ops1]
13:58:00 hours	Safety Investigations notified the MICC Management Team of the possible red signal overrun. [Phone]
16:31:00 hours	ATC reported all involved RTUs had been reset. [Maximo]

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

The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)

Adopted from CMOR IIT report with minor grammatical and formatting edits.

IIT has completed the download and analysis of VMS data. Based on VMS data, Train ID143 departed B35-Noma/New York Avenue, track #1, in the direction of Rhode Island Avenue Station with an ATP speed limit and the regulated speed limit of 35 mph at that time.

The speed readouts momentarily dropped to 0 mph, activating the overspeed alarm and applying full-service brake. The speed readout increased to 22 mph, but with the train's actual speed at 29 mph, the full-service brake re-applied.

The train passed signal B99-06 at 22 mph, with the ATP speed limit and regulated speed limits both at 22 mph. The train came to a complete stop, 1,069 ft. after departing Noma Station.

Stop-and-Proceed was initiated and the Master Controller was placed in a power position and began to move in the direction of Rhode Island Avenue Station.

The train came to a stop after traveling an additional 428 ft., stopping 74 ft. before signal B99-16. The Master Controller was placed in a P2 power mode, and the train again began to move. The train passes signal B99-16 at a speed of 6 mph. The train came to another stop 46 ft. after passing signal B99-16.

The Master Controller was placed in a P5 power mode, and the train began to move again towards Rhode Island Avenue Station and came to a complete stop 3 ft. before the signal B99-26.

The Master Controller was then placed in a P4 power mode, and the train began to move beyond signal B99-2. The train came to a complete stop 538 ft. beyond signal B99-26. Shortly thereafter, the master controller was placed in a P4 power mode, and the train began to move towards Rhode Island Avenue Station.

Once the train arrives at Rhode Island Avenue Station, the train services the station and continues in service. Based on VMS data, there was no fault with the train that contributed to the cause of this incident.

See timeline of events below:

Time	Description of Events	Train Speed	ATP Speed limit	Regulated Speed Limit
12:47:18.024	Train departed Noma/New York Ave in the Direction of Rhode Island Avenue Station. ATP Speed limit and Regulated Speed both 35 MPH.	<1 MPH	35 MPH	35 MPH
12:47:28.648	ATP Speed limit and Regulated speed limit drop from 35 MPH to 0 MPH. Train speed was 29 MPH Overspeed alarm activates and Full-Service Brake Applies, 265 ft. after departing Noma Station.	29 MPH	0 MPH	0 MPH
12:47:29.928	ATP Speed limit and Regulated speed limits increase to 22 MPH. Train speed was 29 MPH, Full-service Brake remains applied, 321 ft. after departing Noma Station.	29 MPH	22 MPH	22 MPH
12:47:41.540	Train ID143 passes B99-06 signal, Track #1, Train speed was 22 MPH, ATP Speed limit and Regulated speed is 22 MPH.	22 MPH	22 MPH	22 MPH
12:47:50.884	ATP Speed limit and Regulated speed limit drop to 0 MPH. Train speed was 19 MPH, Full-service Brake still applied, 943 ft. after departing Noma Station.	19 MPH	0 MPH	0 MPH
12:47:59.232	Train ID 143 came to a complete stop. 1,069 ft. after servicing Noma, NY avenue station, Track #1.	0 MPH	0 MPH	0 MPH
12:50:18.472	Stop-and-Proceed initiated.	0 MPH	0 MPH	0 MPH
12:50:22.952	Master Controller placed in Power mode and train begins to move.	<1 MPH	0 MPH	0 MPH
12:50:22.952 - 12:50:54.629	Master Controlled cycled between lower power and braking modes, traveling no greater than 13 MPH.	<13 MPH	0 MPH	0 MPH
12:50:54.629	Master Controller placed in B3 Braking position		0 MPH	0 MPH
12:50:57.796	Master Controller moved to B5 as Train comes to a stop after traveling an additional 428 ft., 74 ft. before B99-16 Signal.	0 MPH	0 MPH	0 MPH
12:51:24.860	Master Controller moved to P2 Power mode and train begins to move.	<1 MPH	0 MPH	0 MPH

12:51:35.292	Train passes B99-16 signal, Train speed was 6 MPH, Master Controller in the Coast position.	6 MPH	0 MPH	0 MPH
12:51:44.412	Train comes to a complete stop after traveling an additional 120 ft., 46 ft. after B99-16 signal. Traveling at speeds no greater than 6 MPH.	0 MPH	0 MPH	0 MPH
12:52:25.684	Master Controller placed in the P5 Power position and train again begins to move.	<1 MPH	0 MPH	0 MPH
12:53:06.540	Train came to a complete stop 3 ft. short of the B99-26 Signal.	0 MPH	0 MPH	0 MPH
12:58:25.077	Master Controller placed in P4 Power mode and train begins to move	<1 MPH	0 MPH	0 MPH
12:58:41.329	ATP Speed limit and Regulated Speed limit increase from 0 MPH to 45 MPH. Train speed at that time was 14 MPH with the Master Controller in the Coast	14 MPH	45 MPH	45 MPH
12:59:07.052	Train came to a stop 538 ft. beyond the B99-26 signal.	0 MPH	45 MPH	45 MPH
12:59:24.744	Master Controller is placed in P4 Power mode and the train begins to move towards Rhode Island Avenue Station.	<1 MPH	45 MPH	45 MPH
13:00:42.737	Train stops at Rhode Island Avenue Station and services the station.	0 MPH	45 MPH	45 MPH

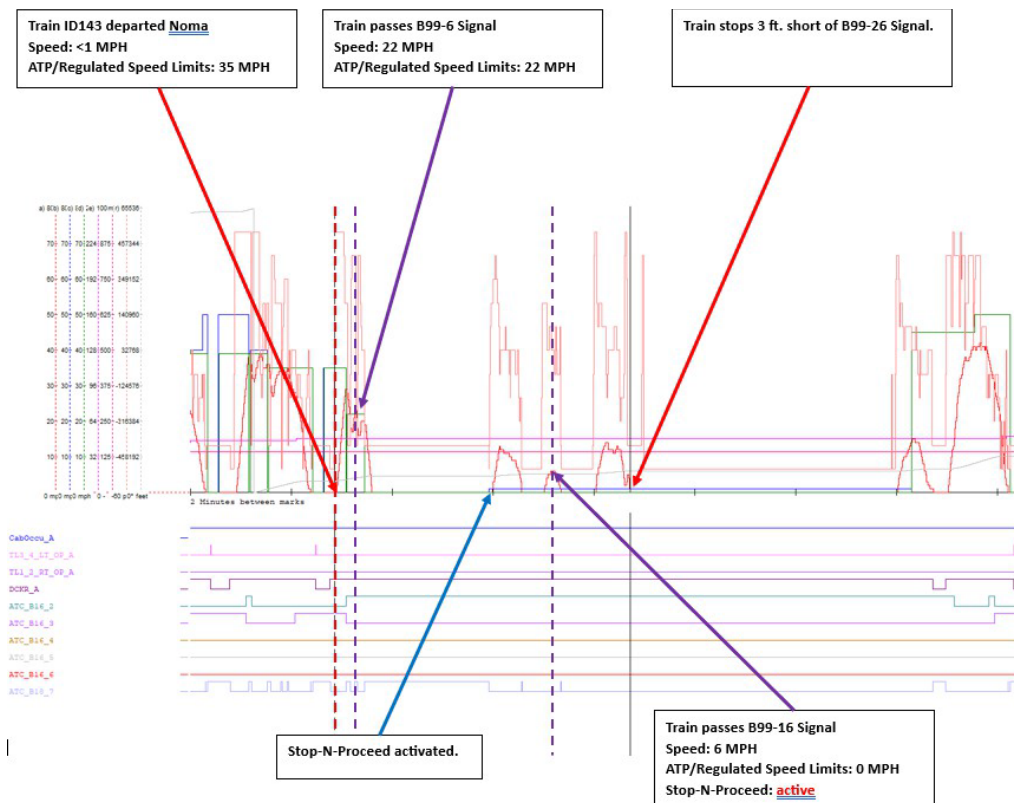


Table 1 - depicted when Train ID 143 passed B99-16 signal red continuing to B99-26 signal red.

Office of Rail Transportation (RTRA)

Adopted from RTRA report:

The Rail Vehicle Operator was given discipline in accordance with the Discipline Administrative Program (DAP).

Interview Findings

As part of the investigation launched into the event, SAFE interviewed three (3) people. The interviews 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.

Rail Vehicle Operator

- Rail Vehicle Operator stated they had been trained in the use of route selection boxes in both the classroom and field.
- Rail Vehicle Operator stated that since being certified in March of 2024, they had operated on the red line and made north and southbound stops at Brentwood Yard.
- Rail Vehicle Operator stated they had speed commands when they departed NoMa Station, and they advised the RTC the B99-16 signal was red.
- Rail Vehicle Operator stated they received a permissive block from the RTC from B99-16 signal to the northbound to drop off two WMATA workers.
- Rail Vehicle Operator stated they had to enter Stop and Proceed to go to that northbound.
- Rail Vehicle Operator stated after they had passed B99-16 signal the RTC advised all trains to stop at red signals, stop now. The Rail Vehicle Operator stated they stopped their train.

- Rail Vehicle Operator stated they had told the RTC that they had been given a block up to the northbound to drop off and continue.
- Rail Vehicle Operator stated the RTC did not respond to statement regarding the prior block. The Rail Vehicle Operator continued to the northbound drop off and then onto Rhode Island Avenue Station.
- Rail Vehicle Operator stated that an RTRA Supervisor boarded the train later and stated a reminder the Rail Vehicle Operator cannot run red signals. The Rail Vehicle Operator stated they continued their remaining two trips and secured for the day. They were not removed from service.

Button RTC

- RTC stated Train ID 143 advised they were on approach to B99-16 signal red and needed a block. The RTC repeated their location. Another person stated over the radio Train ID 143 had passed B99-06 signal but was not at B99-16 signal. Train ID 143 replied they were on approach to Rhode Island Avenue Station. The RTC determined Train ID 143 was at B99-06 signal.
- RTC checked with Brentwood Tower and was advised the Tower observed a stationary train on track 1 that had all lunars.
- RTC confirmed when asked if they had heard the Rail Vehicle Operator's response to the question, "did you have a lunar?" The RTC replied they had; the Rail Vehicle Operator's response was negative.

Senior Manager Operations IT

- RTUs handle hundreds of thousands of sensors that collect data throughout the WMATA system. The RTUs are the hub that is provided through AIMS (Advanced Information Management System) in a visual display.
- Bobbing circuits are intermittent, quick losses of shunts which AIMS displays as interruptions for signals, track and other data. Most are brief and self-restore.

Weather

On July 16, 2024, at the time of the incident, NOAA recorded the temperature as 97°F, with cloudy skies, winds of 12 mph, and 40% humidity. The weather was not a contributing factor in this incident (Weather source: NOAA) – Location: [Washington, D.C.].

Related Rules and Procedures

Metro Operating Rulebook (MOR)

3.3 Signals Requiring a Stop

Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bumping post or pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

Human Factors

Evidence of Fatigue

Rail Vehicle Operator

SAFE evaluated signs and symptoms of fatigue that may have been present at the time of the incident. Video of the incident was not available. The Rail Vehicle Operator reported feeling fully alert at the time of the incident. The Rail Vehicle Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

SAFE evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Rail Vehicle Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Rail Vehicle Operator worked the day shift in the days leading up to the incident. The Rail Vehicle Operator was awake for eight hours at the time of the incident. The Rail Vehicle Operator reported eight hours of sleep in the 24 hours preceding the incident. The off-duty period was ten hours and 30 minutes, providing an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The Rail Vehicle Operator reported no issues with sleep.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program Testing was not applied due to the delay in identifying the red signal overrun and the Rail Vehicle Operators absence in an off-duty status.

Findings

- The Button RTC was working in the capacity of both Radio and Button RTC during the incident for approximately 5-10 minutes.
- RTU's were offline at the time of the incident.
- The Rail Vehicle Operator entered Stop and Proceed and passed a signal displaying a red aspect without permission from the RTC.
- No mechanical defects were identified with the train that would have contributed to the event.

Immediate Mitigation to Prevent Recurrence

- The Rail Vehicle Operator was not removed from service due to a delay in the identification of the Red Signal Overrun event. Placed in non-operational status on return to duty until an interview with RTRA Management.
- RTRA removed the incident train from service for CMNT inspection and CENV analysis.

Probable Cause Statement

The probable cause of the red signal overrun event on July 16, 2024, by Train ID 143 at signal B99-16 near Brentwood Yard, was the Rail Vehicle Operator's failure to verify a lunar aspect prior to moving the train. A contributing factor was the Rail Vehicle Operators' lack of situational awareness and continuous failures of the RTU's.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
118541_SAF ECAPS_RT RA_001	(RC-1) RTRA Management will ensure that Rail Vehicle Operator attends refresher training with an emphasis on red signal operations.	RTRA SRC	Completed

Appendices

Appendix A – Interview Summaries

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.

Rail Vehicle Operator

The Rail Vehicle Operator has been a WMATA employee since July 24, 2017, and held the position as a Rail Vehicle Operator since March 19, 2024. The Rail Vehicle Operator is RWP Level 2 certified, expiring 09/2024.

The Rail Vehicle Operator stated they were trained on how to use the route selector box while in the classroom and the field. They also used the route selector box during certification.

The Rail Vehicle Operator stated they trained on both legacy cars and the 7000 series with more focus on the 7000 series. The training covered emergency procedures related to, door problems, brake malfunctions, and fire and smoke. The On-the-job yard practical training allowed students to rotate between various yards. Since being certified they have been operating on the red line.

The Rail Vehicle Operator stated they had conducted northbound and southbound stops at Brentwood Yard.

The Rail Vehicle Operator stated they worked their regular scheduled run, they had just completed a break and had two round trips left.

The Rail Vehicle Operator stated they did not experience any distractions and felt comfortable operating on the red line.

The Rail Vehicle Operator stated they advised the RTC that the B99-16 signal was red and they received a permissive block. The Rail Vehicle Operator stated they had speed commands coming out of NoMa.

The Rail Vehicle Operator stated the RTC gave a permissive block from signal B99-16 to the northbound to drop off two WMATA personnel, the Rail Vehicle Operator stated they had to enter Stop and Proceed to go to that northbound.

The Rail Vehicle Operator stated that after they left signal B99-16 the RTC advised all trains to stop at all red signals, stop now. The Rail Vehicle Operator stopped their train.

The Rail Vehicle Operator stated to the RTC, you gave me a block up to northbound to drop off and then continue. The RTC then asked the Rail Vehicle Operator where they were, and what is the signal. The Rail Vehicle Operator replied the signal is around the corner, restating the RTC had given the Rail Vehicle Operator a block up to northbound.

The RTC asked what chain marker the Rail Vehicle Operator was located at. The Rail Vehicle Operator advised their chain marker. The RTC replied, OK, you have a permissive block up to the northbound drop off the personnel, and with the turn back, continue.

The Rail Vehicle Operator stated when they told the RTC that they had given the permissive block they did not reply or mention it. The Rail Vehicle Operator stated they proceeded to drop off the two personnel at the northbound and continued to Rhode Island Avenue Station.

The Rail Vehicle Operator stated an RTRA supervisor did board the train and stated to be careful, you know you cannot run red signals. No one removed the Rail Vehicle Operator from service, and they continued finishing their two trips between Takoma and Shady Grove Stations before the conclusion of their shift.

The Rail Vehicle Operator stated that in the incident outside of Brentwood Yard, they had speed commands and were given permission to go to the northbound.

The Rail Vehicle Operator stated in response to WMSC questions they had about 9 hours of overtime built into the schedule. The Rail Vehicle Operator stated that signal B99-16 remained solid red on approach and as they passed the signal.

The Rail Vehicle Operator stated they were not aware of the instruction to use the route selector box at signal B99-16. The Rail Vehicle Operator stated they understood they had permission to pass signal B99-16.

The Rail Vehicle Operator stated they were aware they needed permission to pass a red signal. They stated the permissive block to go to the northbound drop-off meant permission to pass the red signal. The Rail Vehicle Operator stated that knew the permission would normally include the signal number, switch position, and other instructions. When asked for the speed limit when passing a red signal, the Rail Vehicle Operator initially responded 25 mph and was corrected that it was 5 mph over switches.

Button RTC

The RTC stated the Rail Vehicle Operator (Train ID 143) had advised they were on approach to signal B99-16 and they needed a block. They had a red signal, so I repeated their location. Another person stated over the radio that the train had passed signal B99-06 signal that the operator was not quite a 16 signal.

The Rail Vehicle Operator responded they were approaching Rhode Island Avenue, which is nowhere near signal 06, and halfway at 16, I went with the experienced operator who said that the train was at signal B99-06.

The RTC stated they inquired what chain marker the train at the red light was at. The response was nowhere near the actual location they were at. The Rail Vehicle Operator was given a permissive block no closer than 10 feet to the route selector box. The Rail Vehicle Operator had permission to use the route selector box on track #1 after their lunar speed commands.

The RTC stated the Rail Vehicle Operator had a permissive block to the northbound, verifying all lunars.

The RTC stated the Rail Vehicle Operator stated on the radio that they had passed a red signal. The RTC inquired what signal. The RTC asked the Rail Vehicle Operator if they used the route selector box. The Rail Vehicle Operator replied they had.

The RTC inquired which red signal the Rail Vehicle Operator passed. The Rail Vehicle Operator replied they had been given the block. The RTC responded they had given the block to northbound verifying lunars.

The RTC stated the Brentwood Tower had contacted the RTC stating they were not aware of what was going on, but a train was sitting there on track 1 and they had all lunars.

The RTC stated it seemed the Rail Vehicle Operator was unaware of where they were and what they were to do. The RTC blocked the Rail Vehicle Operator to the northbound speed commands continue on.

The RTC checked their AIMS screen for alarms and red signals to see if one had been run. The RTC did not observe any alarms or red signals having been run. The Brentwood Tower confirmed that. The RTC gave the Rail Vehicle Operator the block.

The RTC confirmed that their AIM screen was completely up, but the RTU was bobbing and at B99, which is why they relied on the tower.

The RTC confirmed that they heard the Rail Vehicle Operator's response to the question, did you have a lunar, the response was the Rail Vehicle Operator replied negative.

The RTC stated the Rail Vehicle Operator had to have a lunar, they utilized the route selector box and the tower stated they showed all lunars, they had to have shunted the signal. The RTC stated they concluded after having checked the alarms they verified the signal overrun and the tower's report of what they had on their board.

The RTC responded to a WMSC inquiry that after trains utilized the route selector box no trains reported issues, so the RTC assumed they were lunared up. The RTC stated the signal B99-26 was not automatic but B99-16 was automatic.

The WMSC inquired if there hadn't been times signal 26 was red, they thought operators had reported it. The RTC had not heard that information but stated that 06 and 16 were red and 26 was fledted.

The WMSC commented on OPS 2 Morgan Blvd a 02 signal was fledted when the RT went down and operators were reporting it was lunar and it suddenly went red, and they were given permission to pass red signals. The signal would not (unintelligible...lunar back up). The RTC asked if the signal was clamped and WMSC advised no.

The WMSC stated it seems they are following an old rule about not having to clamp switch if you can verify. RTC responded if it fledted on the opposite track you can pass.

The WMSC stated they had not seen a fleet go down and then come back up during an RTU. The RTC stated it appears red to me. The WMSC stated it would probably change how RTC handles Code 34s. The RTC agreed.

The WMSC and RTC agreed the trust factor of the signal status was an issue. The WMSC added they had spoken with the interlocking operator who stated they were unaware of the Code 34 issue. The RTC replied they were going by their information and did not have a Code 34. Their board is a manual board. They did not have an AIMS screen board.

The WMSC asked if, in the RTC's control room experience, they had seen one where the RTU goes down and affects the board that Brentwood or anywhere else we can...? The RTC replied no, it would not affect it at all, just the mainline.

The WMSC asked when the Interlocking Operator reported there were lunars across the board, they were just looking at their board. The RTC replied yes, their board, they can see the trains or occupancy within the circuit. The RTC stated the interlocking operator at the 26 signal can push

manually to lunar up, but when it is green, it's already lunar that the red signal within that circuit is the train. That is how they knew a train was sitting there and that's how he knew the train had lunars.

The RTC responded to the WMSC's question of what role they were scheduled in the MICC for and the RTC advised the Radio RTC was on a restroom break and they were on the buttons.

Senior Manager Operations IT

WMATA uses several models of RTU that function similarly but newer RTUs such as Silver Lines operate more efficiently and reliably. The RTUs handle hundreds of thousands of sensors collecting data allowing activity to power train movement, phone, water, fan, and other activities.

The RTU is the hub while AIM uses a screen to visualize the data. The RTU allows IT to control remotely and provide visibility. The bobbing circuit issue is the quick loss of shunts which shows in AIMS as irregular interruptions of signals for train, track, and other conditions. Most are brief interruptions with self-reset. The RTU does not detect bobbing circuits.

RTUs are impacted by the system in which redundancy is built in for primary Virginia Headquarters and Maryland Headquarters, described as active/active, the older Horton RTU model does not allow this double redundancy and it frequently goes offline.

If the RTU does not automatically reset, the MICC Assistant Director notifies IT and attempts to clear and reset the front-end processor unit to restore. If that is unsuccessful Comm and Signal are assigned to reset. A hard reset requires an in-person response to the RTU site by Comm and Signal manually reset. Not aware of specific procedures or clearances to access the RTU site and device.

When RTUs go intermittent or offline what alarm or signal a signal is sent to AIMS and the event is recorded, the RTU appears grayed out on the AIMS screen for the duration, if momentary it may not be noticed. No acknowledgment is required. The longer duration RTU offline are addressed by MICC to address resetting.

A follow-up data set of the previous six-month log of RTU failures was provided. During the February-August 2024 period approximately 10,351 failure events were recorded. Most were of brief periods and self-reset within seconds.

In response to direct WMSC inquiry regarding any information on the cause of issue on July 16th, 2024 and the RSO timing? It appeared that since AIMS system is real time and depends on clocking- appears clocking drifted ahead and back. AIMS shut down to try to recover host and front end processor. AIMS recovered before the RSO. The AIMS screen will display the last known status of conditions, a red signal was displayed. ITS is still investigating the issue and will prepare report when completed.

Appendix B – RTRA Incident/Accident Report (Abridged)

WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page ____ of ____			
Incident Information: This page must be completed for all incidents			
Date: 7/16/24	Incident Time: 10:18pm	Time Reported:	Reported by: Customer <input type="checkbox"/> Employee <input type="checkbox"/> ROCC <input type="checkbox"/> Other <input type="checkbox"/>
Location			
Station: Brentwood	Mezzanine #:	Track #/Destination: 1	Chain Marker/Signal Number: B99/26
TYPE OF INCIDENT			
<input type="checkbox"/> Property Damage	<input type="checkbox"/> Smoke	<input type="checkbox"/> Fire	<input type="checkbox"/> Customer Complaint
<input type="checkbox"/> Customer Injury	<input type="checkbox"/> Customer Illness	<input type="checkbox"/> Employee Injury	<input type="checkbox"/> Employee Illness
<input type="checkbox"/> Criminal Activity	<input type="checkbox"/> Elevator Entrapment	<input type="checkbox"/> Rail Vehicle Incident	<input type="checkbox"/> Other (Explain in description of incident)
WEATHER		LIGHT CONDITIONS (natural lighting)	
Clear <input checked="" type="checkbox"/> Rain <input type="checkbox"/>		Dawn/Dusk <input type="checkbox"/> Daylight <input checked="" type="checkbox"/>	
Snow <input type="checkbox"/> Sleet/Ice <input type="checkbox"/>		Dark <input type="checkbox"/> Tunnel/Underground <input type="checkbox"/>	
STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC		LIGHTING (artificial lighting)	
Elevator/Escalator#:	AFC #:	Lights On <input type="checkbox"/> Lights Off <input checked="" type="checkbox"/> Lights Not Working <input type="checkbox"/>	
Room Number/Location:			
Failure Number(s):			
Parking Lot <input type="checkbox"/> Paid Area <input type="checkbox"/> Free Area <input type="checkbox"/> Garage <input type="checkbox"/> Station Entrance <input type="checkbox"/> Stairway # ____ <input type="checkbox"/> Platform <input type="checkbox"/> Ancillary Room <input type="checkbox"/>			
Injury/Illness reported aboard Train <input type="checkbox"/> Other <input type="checkbox"/>			
Name of Responding Supervisor:		Name/Department of PLNT/AFC or other WMATA responder	
TRAIN INCIDENTS			
Train ID	Destination: Takoma	Car Numbers (list all cars in consist):	Lead Car:
Name of Responding Supervisor:		Name/Department of CMNT/TRST or other WMATA responder	
DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.			
Describe any property damage and the extent of any injuries.			
<p>On 7/16/24 while operating train at Noma station, was given a block to North bound pick up to drop off to personnel. While getting that piece of info from Central. Central also told me "I have a permissive block to North bound, signal B99/16 is red you have permissive blocks to Northbound drop off personnel and continue on". I did that and continued to the remainder of my manifest</p>			
Employee Completing Report			
Employee Name (print):	Employee Signature (sign):	Employee #:	Date: 7/19/24
Division: Shady Grove	Run #: 200	Block #:	Assigned Days: Wed/Thurs
To Be Completed By Reviewing Manager			
Supervisor Name (print):	Supervisor Signature:	Employee #:	Date: 7-19-2024
Action taken/needed: Under investigation			
SMS Number: 20240722# 118541			

50.753A 09/11 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators, remains in kiosk for use of elevator/escalator inspectors

Document 1 - RTRA Rail Vehicle Operator Incident Report/Statement - Redacted

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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**Washington Metropolitan Area Transit
Authority**
Office of Rail Transportation: Managerial Incident Investigation Report



Incident Status: PRELIMINARY

GENERAL INCIDENT INFORMATION

Incident Type:	Red Signal Overrun	Delay (Minutes):	0
Incident Date:	Tuesday, July 16, 2024	Vehicles Involved:	L3200-3253-3123-3266
Incident Time:	1:01pm	First Reported By:	MICC Rail
Location:	Brentwood Yard B99/16		

BRIEF DESCRIPTION:

At approximately 6:00pm on Friday, July 16, 2024, Assistant Superintendent [REDACTED] was notified of a possible red signal overrun by train ID 128. The possible overrun had occurred at B99-16 in the mainline section of Brentwood Yard at 1:01pm. Upon being notified the operator involved was identified but was unable to be interviewed due to the operator going home for the day. The operator was contacted via landline pertaining to the incident and requested to contact their shop steward before being interviewed. There were several more attempts made to contact the operator that day however the attempts were unsuccessful. The operator was placed in a non-operational status and upon returning to work after their assigned days was interviewed separately by Shady Grove division management and SAFE.

Key Employees Involved & Employee Statements:

[REDACTED] - On 7/16/24 while operating train at NoMa station, was given a block to the northbound stop to drop off to personnel. While getting that piece of info from central central also told me "I have a permissive block to North bound signal B99-16 is red. You have permissive block to Northbound drop off personel and continue on. I did that and continued to the remainder of my manifest



Washington Metropolitan Area Transit Authority



Office of Rail Transportation: Managerial Incident Investigation Report

Post Incident Testing & Employee History:

Operator [REDACTED] was not removed from service due to the timeliness of the reported incident.
Operator [REDACTED] has been a WMATA employee since July 24, 2017.
Operator [REDACTED] has a rail vehicle operator since March 19, 2024.
Operator [REDACTED] has had 0 previous safety incidents or violations within the last 24 months.

SIGNIFICANT INCIDENT TIMELINE:

6:00pm- Assistant Superintendent [REDACTED] notified of possible red signal overrun.
6:05pm- Superintendent [REDACTED] is notified by Assistant Superintendent Cromartie of incident.
7:00pm- Operator [REDACTED] is contacted by Assistant Superintendent Cromartie to notify them of the incident and of an interview with SAFE and placed in a non-operational status.
7:36pm- Superintendent [REDACTED] attempts to contact Operator [REDACTED]. There is no answer. Voicemail full.
8:10pm- Superintendent [REDACTED] attempts to contact Operator [REDACTED]. There is no answer. Voicemail full. (2nd Attempt)
July 19, 2024, 10:00am- Operator [REDACTED] has interview with SAFE and remains in a non-operational status.

SIGNIFICANT FINDINGS & PENDING ISSUES:

1. Operator [REDACTED] admitted to SAFE during the interview that he did overrun signal B99-16 red.

CORRECTIVE ACTIONS:

Investigation is ongoing/ pending.

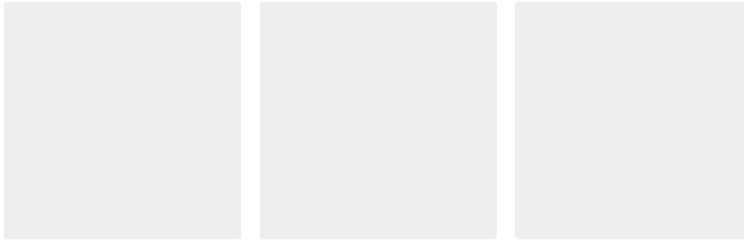


Washington Metropolitan Area Transit Authority



Office of Rail Transportation: Managerial Incident Investigation Report

INCIDENT PHOTOS: ATTACH ANY SIGNIFICANT PHOTOS BASED ON THE INITIAL INCIDENT INVESTIGATION.



Report Prepared by: Assistant Superintendent [REDACTED] 7/22/2024
Report Reviewed by: _____

Document 4 - RTRA Managerial Investigative Report - Redacted, Page 3 of 3.

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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Appendix C – MICC Systems and Systems Failures

Procedure No. MICC-ALL-PRO-08
MICC Systems & System Failures

Rev. 1,4/22/2024

- appropriate trouble code (e.g., "COMP" for computer malfunction).
 - 6.4.1.4.2 Contact WMATA IT via email or phone to open a ticket.
 - 6.4.1.4.3 Coordinate with WMATA IT to ensure that the console issue is resolved.
 - 6.4.1.4.4 When the issue is resolved, update and close the Maximo incident.
- 6.4.2 If the issue extends across shifts, the outgoing Lead shall inform the incoming Lead of the issue and the alternate console the incoming employee should use, and the incoming affected employee shall continue to monitor the resolution.
- 6.4.3 Once the affected console has been restored to normal operations, the Lead shall:
 - 6.4.3.1 Instruct the affected employee to return to the normal console.
 - 6.4.3.2 Send an email to RAIL 1, METRO 1, MICC Director, and the MICC Assistant Director of the resolution.
 - 6.4.3.3 Update the MICC Activity Log entry.
- 6.5 **ROCS Failure**
 - 6.5.1 When there is a failure of the ROCS (total or partial), the following procedure shall be implemented:
 - 6.5.1.1 The employee who notices the ROCS failure shall notify RAIL 2.
 - 6.5.1.2 RAIL 2 shall notify ROCS IT by phone.
 - 6.5.1.3 RAIL 2 shall notify COMMS 1, MAINT 1, RAIL 1 and all RTCs verbally that the system is down.
 - 6.5.1.4 MAINT 1 shall instruct the MC at the Automatic Train Control (ATC) desk to notify all divisions of the issue and those appropriate personnel should be dispatched.
 - 6.5.1.5 MC at the ATC desk shall open a Maximo incident and associate the respective work orders for dispatched personnel.
 - 6.5.1.6 MAINT 1 shall inform the PDAS.
 - 6.5.1.7 RAIL 1 shall inform METRO 1, POLICE 1, and FLO.
 - 6.5.1.8 RAIL 2 shall instruct the Radio RTCs to do the following:
 - 6.5.1.8.1 Make a general announcement on all affected operating frequencies that operators are to operate their trains at mode 2 level 1 not to exceed 59 mph.
 - 6.5.1.8.2 If applicable, the general announcement shall also notify all personnel on the roadway instructing them to clear the roadway at the next available station or flag the next train to exit the roadway. Clearing times shall be recorded on the Personnel Roadway Access Form, MICC-ROC-FRM-24
 - 6.5.1.9 The RTCs shall dispatch Office of Rail Transportation (RTRA) personnel to key locations to include the following interlockings and route change locations:
 - 6.5.1.9.1 C05, Rosslyn Track #2, Orange/Silver diverging route to K Line
 - 6.5.1.9.2 C07, Pentagon Track #1, Yellow diverging route to L Line
 - 6.5.1.9.3 C13, King Street Track #2, Blue diverging route to J Line

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Document 4 – MICC-ALL-PRO_08, Page 1 of 5.

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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- 6.5.1.9.4 D08, Stadium Armory Track #1, Blue/Silver diverging route at the D & G to the G Line
- 6.5.1.9.5 F03, L'Enfant Plaza (upper level) Track #2, Yellow diverging route to L Line
- 6.5.1.9.6 K05, East Falls Church Track #2, Silver diverging route at the K & N to the N Line
- 6.5.1.9.7 A03, Dupont Circle Track #1, prone to intermittent automatic signal issues with A02-26 signal.
- 6.5.1.9.8 A02, Farragut North Track #2, prone to intermittent automatic signal issues with A02-52 and A02-42 signals
- 6.5.1.10 RTCs on all affected consoles shall enter the incident on the MICC Daily Summary of Train Operations, MICC-ROC-FRM-08.
- 6.5.1.11 If the incident continues across shifts, RAIL 2 shall record the incident in the MICC Activity Log or shall delegate an RTC to do so.
- 6.5.2 If the system is not restored within ten (10) minutes, then Code 34 shall be initiated as per Section 6.6.
- 6.5.3 If the system is restored within ten (10) minutes, then the following procedure shall be implemented:
 - 6.5.3.1 RAIL 2 shall notify ROCS IT by phone that the system is restored.
- 6.5.4 RAIL 2 shall notify COMMS 1, MAINT 1, RAIL 1 and all RTCs that the system is restored.
- 6.5.5 MAINT 1 shall instruct the MC at the ATC desk to notify all divisions and appropriate personnel that the system is restored.
- 6.5.6 MC at the ATC desk shall update the Maximo incident, noting the number of minutes the system was down in the incident duration field and noting any customer and train delays that resulted from the outage.
- 6.5.7 MAINT 1 shall inform the Power Desk Supervisor that the system is restored.
- 6.5.8 RAIL 1 shall inform METRO 1 and POLICE 1 that the system is restored.
- 6.5.9 Radio RTCs shall make a general announcement on all affected operating frequencies that states: "Attention all personnel, please return to normal operations. Roadway personnel please contact MICC for permission to resume inspections."
 - 6.5.9.1 The RTCs shall release RTRA from key locations (see 6.5.1.9) and instruct them to return to normal operations.
 - 6.5.9.2 RTCs on all affected consoles shall update the incident on the MICC Daily Summary of Train Operations, MICC-ROC-FRM-08, accordingly.
 - 6.5.9.3 RAIL 2 shall update and resolve the incident on the MICC Activity Log or delegate a RTC to do so.
- 6.6 Initiating Code 34
 - 6.6.1 Code 34, defined in Section 6.5, refers to a failure of ROCS or DTS in which MICC is unable to remotely control and monitor the system for more than a few minutes.
 - 6.6.2 The Maintenance Section shall be responsible for ensuring that all required rail maintenance response activities are followed in the event of a ROCS failure.

- 6.6.2.1 Director, Superintendents or designee are responsible for maintaining up to date "Code 34" assignment lists for Maintenance Section and for ensuring that all concerned personnel understand how their duties are to be performed in the event of Code 34 implementation.
 - 6.6.2.2 Maintenance personnel are responsible for dispatching themselves as quickly as possible to their assigned locations with their Personal Protective Equipment (PPE) and hand tools. Personnel involved in corrective maintenance (CM) will notify the Maintenance Section and account for all personnel involved as directed.
 - 6.6.3 If the ROCS is not restored within ten (10) minutes, RAIL 1 shall declare a "Code 34".
 - 6.6.4 RAIL 1 shall verbally inform, in person or by phone, the following personnel of the declaration of a Code 34 immediately:
 - 6.6.4.1 METRO 1
 - 6.6.4.2 MICC Director
 - 6.6.4.3 MICC Assistant Director
 - 6.6.4.4 RAIL 2
 - 6.6.4.5 COMMS 1
 - 6.6.4.6 MAINT 1
 - 6.6.4.7 POLICE 1
 - 6.6.4.8 SIO
 - 6.6.4.9 ROCS IT
 - 6.6.5 METRO 1 or designee shall text the management text group.
 - 6.6.6 MAINT 1 shall instruct the MC at the ATC desk to contact the maintenance supervisors to dispatch ATC personnel.
 - 6.6.7 MC at the ATC desk shall call all maintenance supervisors according to the ATC Daily Work Locator sheet and instruct them to dispatch ATC personnel to critical locations.
 - 6.6.7.1 The MC shall record the time and name of maintenance supervisors (for each yard/office) that have been contacted in the MC Code 34 Contact Log.
 - 6.6.7.2 The maintenance supervisors will call the MC back to confirm ATC personnel are enroute and provide an estimated time of their arrival.
 - 6.6.7.3 Upon arrival, dispatched ATC technicians will call the MC at the ATC desk to confirm time of arrival, dispatched location, and their Radio Call #.
- NOTE: Maintenance groups will provide their Code 34 Standby locator sheets after the conclusion of each bi-annual shift pick. Any modifications to the locator sheet shall be indicated on the daily locator sheets sent to the Maintenance Section each month.**
- 6.6.7.4 MC shall record the dispatched ATC personnel details in the MC Code 34 Contact Log.
 - 6.6.8 The MC at the ATC desk shall make the Code 34 announcement via radio on the ATC Maintenance Ops:
 - 6.6.8.1 The Code 34 radio announcement shall state: "Attention all ATC, COMM, and Power personnel, a Code 34 is now in effect. Proceed to your reporting locations and contact your respective Maintenance Section desk immediately."

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MICC-ALL-PRO-08, 4/22/2024

Document 4 – MICC-ALL-PRO_08, Page 3 of 5.

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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- 6.6.8.2 The Code 34 radio announcement shall be immediately repeated. Then, after two (2) minutes the message shall be repeated.
- 6.6.9 MAINT 1 shall call the following group supervisors and record it on the MAINT 1 Code 34 Contact Log.
 - 6.6.9.1 Automatic Train Control (ATC).
 - 6.6.9.2 Communications (COMM).
 - 6.6.9.3 Facilities Maintenance (FMNT).
 - 6.6.9.4 Track and Structures (TRST).
- 6.6.10 RAIL 2 shall instruct RTCs to do the following:
 - 6.6.10.1 All Button RTCs shall inform all terminals of the Code 34 and instruct them that if any operator experiences an emergency or red signal, they shall contact MICC from the nearest Emergency Trip Station (ETS) box.
 - 6.6.10.2 All Button RTCs shall inform all Interlocking operators of the Code 34 and instruct them not to send any trains for transport.
 - 6.6.10.3 All Radio RTCs shall make the Code 34 announcement via radio on all Ops:
 - 6.6.10.3.1 The Code 34 radio announcement shall state: "Attention all personnel, MICC is experiencing a Code 34. If you experience an emergency or are holding at a red signal with no radio communications, contact MICC immediately from the nearest ETS box."
 - 6.6.10.3.1.1 If applicable, the announcement shall also state: "All personnel roadway, please flag the next train to a stop for a train pickup and contact MICC once clear of the roadway."
 - 6.6.10.3.2 The Code 34 radio announcement shall be immediately repeated. Then, the announcement shall be made every two (2) minutes until Code 34 is cancelled.
 - 6.6.10.4 If the Executive Traffic Display (<http://rocsgraph/cgi-bin/tpsmain?index=LSD>) website is available, all Radio RTCs shall open the website on their corporate PCs to monitor the railroad.
- 6.6.11 COMMS 1 shall instruct the Communications Agent, Everbridge Rail to distribute the appropriate notifications via Everbridge.
 - 6.6.11.1 Throughout the Code 34, the MAINT 1 shall ensure that action is taken to call in additional maintenance and supervisory personnel where necessary to provide adequate system coverage, after securing permission to do so from the appropriate Director, Business Manager or Superintendent.
- 6.7 Cancellling Code 34
 - 6.7.1 Once RAIL 1 confirms that there is a clear indication that the ROCS has returned to operation, RAIL 1 shall instruct RAIL 2 to coordinate with the RTCs to check the system.
 - 6.7.2 RAIL 2 shall instruct the RTCs on all Ops to conduct the following tests and report the results:
 - 6.7.2.1 Radio RTCs shall perform communications checks with train operators and confirm the systems are operational.

- 6.7.2.2 Button RTCs shall check for central control of interlockings.
 - 6.7.3 If the system checks are unsuccessful, RAIL 2 shall verbally notify RAIL 1 immediately. RAIL 1 shall coordinate with ROCS IT.
 - 6.7.4 Once all RTC checks have been completed successfully, RAIL 2 shall confirm success to RAIL 1.
 - 6.7.5 RAIL 1 shall then cancel Code 34.
 - 6.7.5.1 RAIL 1 shall verbally inform ROCS IT, SIO, POLICE 1, METRO 1, MICC Director, MICC Assistant Director.
 - 6.7.5.2 RAIL 1 shall verbally inform RAIL 2.
 - 6.7.5.3 RAIL 2 shall verbally inform MAINT 1 and COMMS 2.
 - 6.7.6 MAINT 1 shall instruct the MC at the ATC desk to notify all field maintenance personnel affected by Code 34 of the cancellation by radio or telephone, as appropriate.
 - 6.7.7 The MC at the ATC desk shall make the Code 34 cancellation announcement via radio on the ATC Maintenance Ops radio:
 - 6.7.7.1 The Code 34 cancellation radio announcement shall state: "Attention all ATC, COMM, and Power personnel, Code 34 is cancelled at this time. All personnel are released from their standby locations."
 - 6.7.7.2 The Code 34 radio announcement shall be immediately repeated. Then, after two (2) minutes the message shall be repeated.
 - 6.7.8 RAIL 2 shall instruct RTCs to do the following:
 - 6.7.8.1 All Button RTCs shall inform all terminals and interlocking operators of the Code 34 cancellation and instruct them to return to normal operations.
 - 6.7.8.2 All Radio RTCs shall make the Code 34 cancellation radio announcement via radio on all Ops:
 - 6.7.8.2.1 The Code 34 cancellation radio announcement shall state: "Attention all personnel, Code 34 is cancelled at this time. All personnel shall return to normal operations. Roadway personnel please contact MICC for permission to resume inspections."
 - 6.7.8.2.2 The Code 34 radio announcement shall be immediately repeated. Then, after two (2) minutes the message shall be repeated.
 - 6.7.9 COMMS 1 shall instruct the Communications Agent, Everbridge Rail to distribute the Code 34 cancellation notifications via Everbridge.
 - 6.7.10 RAIL 2 shall update and resolve the incident on the MICC Activity Log or delegate a RTC to do so.
 - 6.7.11 MAINT 1 shall update the Maximo incident – noting the number of minutes the system was down in the incident duration field and noting any customer and train delays that resulted from the outage.
- 6.8 Rail System Recorded System Files
- 6.8.1 The MICC controls the Neptune Intelligence Computer Engineering (NICE) system for rail operations. All recordings shall be pulled as outlined by this procedure.
 - 6.8.2 In the MICC the following are authorized to pull recordings from the NICE system:

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MICC-ALL-PRO-08, 4/22/2024

Document 4 – MICC-ALL-PRO_08, Page 5 of 5.

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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Appendix D – Maximo Reports

Incident: 8775778	Total Delay (mins)	Total Trips
Station Location: C88	Line Delay Total:	Partial Total:
Incident Description: Multiple RTU's intermittently displaying on/off indicat	Passenger Delay Total:	Offload Total:
Additional Comment:	Train / Bus Delay Total:	Late Dispatch Total:
		No Dispatch Total:

Time And Date	Summary	Trouble Code	Train ID	Line Delay	Passenger Delay	Train / Bus Delay	Offload
7/16/24 12:37	Multiple RTU's intermittently displaying	RTUS					
7/16/24 13:18	ATC #2209 completed hard reset of B0						
7/16/24 13:21	ATC #272 completed hard reset of B06						
7/16/24 13:36	ATC #2540 completed hard reset of A0						
7/16/24 13:46	ATC #2446 completed hard reset of C0						
7/16/24 13:51	ATC #2446 complete hard reset of D02						
7/16/24 16:31	ATC reset all affected RTUs.						

Maximo Incident #: 8775778 OrbCAD #: External Incident #: Status: RESOLVED Attachments

Incident Details	
Incident Start: 7/16/24 12:37	Rail Line:
Train ID:	Operator#:
Direction:	Jurisdiction:
Reported Location:	Injuries??
Station Location: C88 EISENHOWER AVE VA HEADQUARTERS	#9#??
Asset:	Mode of Operation:
Location:	# Of Cars in Consist:
Latitude:	Originating OCC: MOCC
Longitude:	Created By:
Summary: Multiple RTU's intermittently displaying on/off indication at: B99,B02,B03 ,B06 ,A02 ,A03 ,B04 ,D02 ,G05 ,C05, C02	Reported By:
Details: Corrected Incident by changing Responsibility Code from ATC to ITS, to reflect issue caused by IT code 34. 7/17/24, REPA/MZ.	Created Date: 7/16/24 12:37
	Status Date: 7/16/24 16:31
	Modified by:

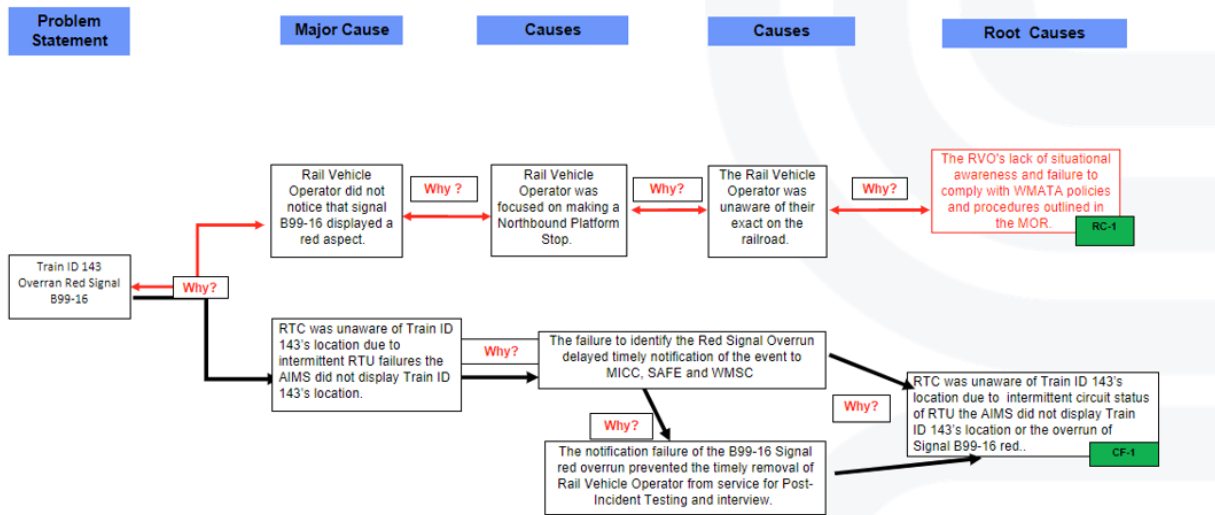
Document 5 – Maximo Report and Resolution, Page 1 of 1.

Incident Date: 07/16/2024 Time: 08:40 hours
Final Report – Red Signal Overrun Rev 1.
E24560

Drafted By: SAFE 705 – 06/30/2024
Reviewed By: SAFE 702 – 09/16/2024
Approved By: SAFE 707 – 09/16/2024

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Appendix E – Why-Tree Analysis



Root Cause Analysis



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

FINAL REPORT OF INVESTIGATION A&I E24687

Date of Event:	August 30, 2024
Type of Event:	O:8: Red Signal Overrun
Incident Time:	21:48 Hours
Location:	Downtown Largo Station (G-05)
Time and How received by SAFE:	22:51 Hours, Safety Information Officer (SIO)
WMSC Notification Time:	22:51 Hours
Responding Safety Officers:	Office of Safety Oversight (OSO)
Rail Vehicle:	Train ID 419 (L7196-97x7213-12x7199-98T)
Injuries:	None
Damage:	None
Emergency Responders:	None
SUDS I/A Number	20240830#119475MX

Downtown Largo Station – Red Signal Overrun

August 30, 2024

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Abbreviations and Acronyms

AD	As Directed
AIMS	Advanced Information Management System
ARS	Audio Recording System
ATC	Automatic Train Control
ATCM	Automatic Train Control Maintenance
CCTV	Closed-Circuit Television
CMOR IIT	Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT)
CMOR	Office of Radio Communications
CRCS	Comprehensive Radio Communications System
ESR	Event Scene Release
FT	Foul Time
LGO	Largo
Maximo	Maintenance and Material Management System
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
MPH	Miles Per Hour
NOAA	National Oceanic and Atmospheric Administration
OAP	Operations Administrative Policy
OM	Operations Manager
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
SAFE	Department of Safety
SIO	Safety Information Official
SMS	Safety Measurement System
SPOTS	System Performance On-Time Summary
VDMS	Vehicle Monitoring and Diagnostic System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Washington Metropolitan Area Transit Authority
Department of Safety – Office of Safety Investigations

Executive Summary

**Note that all times listed are approximate and may contain minor variations due to differences between systems of record. **

On Friday, August 30, 2024, at 21:49 hours, the Metrorail Integrated Command and Communications Center (MICC) (MICC) Button RTC informed the Largo Terminal Supervisor that a Red Signal Overrun occurred involving Train ID 419 (T7169-97x7213-12x7199-98T), a 6-car 7k series train. Train ID 419 reportedly overran signal G98-26 on track 1, which displayed a red aspect.

At 21:45 hours, Train ID 419 arrived at Downtown Largo Station properly berthed at the 8-car marker and serviced the station on track 1. Rail Vehicle Operator #1 in Lead Car 7196 keyed down and was relieved by Rail Vehicle Operator #2 at the 8-car marker. Rail Vehicle Operator #2 keyed up, initiated Stop and Proceed at the 8-car marker on track 1, and began moving the train towards the tail track before receiving an absolute block from the Largo Terminal Supervisor.

Train ID 419, traveling at 12.5 MPH, passed signal G98-26 on track 1 displaying a red aspect, and came to a complete stop 238 feet beyond the signal. After the event, the Largo Terminal Supervisor observed a flashing red indication light on the interlocking board and was unable to set a route for Train ID 419 to cross from Track 1 to Track 3. The Largo Terminal Supervisor contacted Rail Vehicle Operator #2 via radio, who confirmed that Train ID 419 had stopped past signal G98-26 red.

The Largo Terminal Supervisor requested foul time (FT) from the Radio RTC to investigate the incident. An Office of Rail Transportation Supervisor (RTRA), Automatic Train Control (ATC) personnel, and a Senior Safety Specialist responded to the scene.

In adherence to Standard Operating Procedure 102-01-02, which outlines the protocol for Removing an Employee from Service for involvement in an operational safety event, the Radio RTC dispatched a Rail Supervisor to relieve Rail Vehicle Operator #2 and the Largo Terminal Supervisor from duty for post-incident testing.

In accordance with the Office of the Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Operations Administrative Policy (OAP) 102.06, the MICC promptly initiated the removal of Train ID 419 from revenue service for post-incident investigative measures. This action adhered to the Rail Vehicle Event Investigation Policy, ensuring a comprehensive examination of the incident.

The probable cause of the Red Signal Overrun event at Downtown Largo Station on August 30, 2024, at Downtown Largo Station was the lack of situational awareness of the Rail Vehicle Operator #2 and failure to establish positive radio communications with the Largo Terminal Supervisor.

Incident Site

Downtown Largo Station (G-05), track 1.

Field Sketch/Schematics

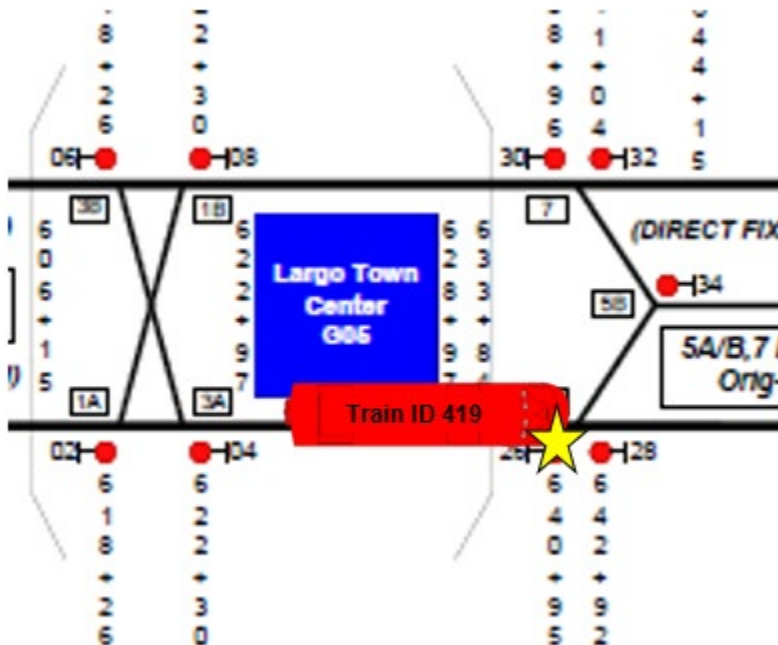


Figure 1: The above depiction is not to scale.

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

Upon receiving notification of the Red Signal Overrun at the Downtown Largo Station on August 30, 2024, SAFE dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Site assessment through video and document review.
- Formal Interviews – SAFE interviewed three (3) individuals as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individuals:

- Largo Terminal Supervisor
- Rail Vehicle Operator #2
- Rail Vehicle Operator #3
- 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 – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
 - Rail Vehicle Operator's 30-day work history
 - Rail Vehicle Operator's Incident Reports
 - Rail Vehicle Operator's Manifest
 - RTRA Supervisors Report
 - Metrorail Operating Rulebook (MOR)
 - National Oceanic and Atmospheric Administration (NOAA)
 - MICC Incident Report
 - Maintenance and Material Management System (Maximo)
 - Office of the Chief Mechanical Officer, Incident Investigation Team (CMOR) (IIT)
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback
 - Closed-circuit television (CCTV)
 - Advanced Information Management System (AIMS)
 - System Performance On-Time Summary (SPOTS)

Investigation

On Friday, August 30, 2024, at 21:49 hours, the MICC Button RTC informed the Largo Terminal Supervisor that a Red Signal Overrun occurred involving Train ID 419 (T7169-97x7213-12x7199-98T). Train ID 419 reportedly overran signal G98-26 on track 1, displaying a red aspect.

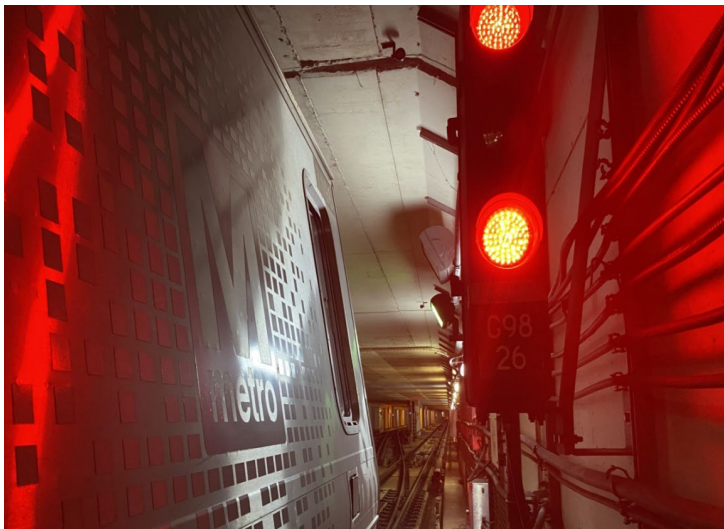


Image 1: Depicts signal G98-26 at Downtown Largo Station. (CCTV)

The front interlocking at Largo Terminal had been out of service for approximately one month. Trains arriving on track one were unable to cross over to track two when traveling inbound. Trains

Incident Date: August 30, 2024 Time: 21:48 hours
Final Report – Red Signal Overrun Rev. 1
E24687

Drafted By: SAFE 706- 10/25/2024
Reviewed By: SAFE 702- 10/27/2024
Approved By: SAFE 707 – 11/01/2024

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on track one must verify the lunar and correct rail alignment at signal G98-26 before crossing from track one to track three. Rail Vehicle Operators are granted a permissive block by the Largo Terminal Supervisor to cross over from Track Three to Track Two back to Downtown Largo Station. To assist with the on-time departures from Downtown Largo Station, trains were double-ended by Rail Vehicle Operators.

At 21:45 hours, Train ID 419 arrived at Downtown Largo Station, properly berthed at the 8-car marker, and serviced on track 1 at 21:46 hours. Rail Vehicle Operator #1 keyed down and was relieved by Rail Vehicle Operator #2 at the 8-car marker. Simultaneously, Rail Vehicle Operator #3 boarded the train and staged in the trailing car 7198 (double ending the train). Rail Vehicle Operator #2 initiated stop and proceed at the 8-car marker on track 1 and proceeded to move the train before receiving a permissive block from the Largo Terminal Supervisor.



Image 2: At 21:45 hours, depicts Train ID 419 properly berthed at the 8-car marker at the Downtown Largo Station.

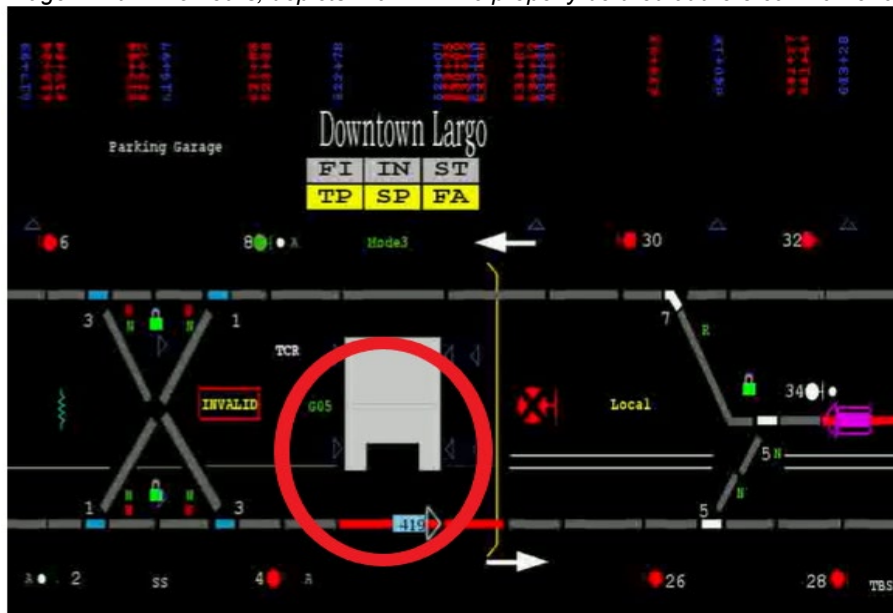


Image 3: The circle depicts Train ID 419 servicing Downtown Largo Station track 1 at 21:46 hours.

During a formal interview, Rail Vehicle Operator #3 stated they were aware the front interlocking was out of service and confirmed they were staged in the trailing car of Train ID 419. They acknowledged hearing the Largo Terminal Supervisor advise that the signal was red and admitted

to moving the train without permission from the Terminal Supervisor. Rail Vehicle Operator #3 also noted difficulty with radio communication in certain areas of the station. Rail Vehicle Operator #3 stated they did not recall if the Largo Terminal Supervisor instructed them to move Train ID 419. Rail Vehicle Operator #3 stated they were not aware of the signal being passed.

According to the AIMS Playback at 21:47 hours, Train ID 719 was positioned in Largo tail track on track 3 and was granted a permissive block by the Largo Terminal Supervisor to the 8-car marker on track 2 at Downtown Largo Station.

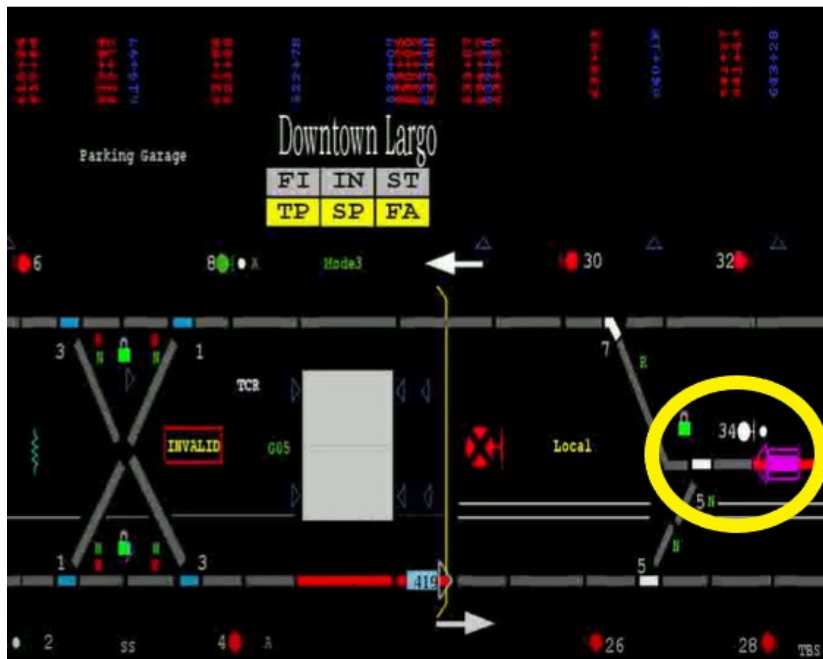


Image 4: The yellow circle depicts Train ID 719 with a route set to Downtown Largo Station track 2 at 21:47 hours.

CCTV revealed that at 21:47 hours, Train ID 419 departed from Downtown Largo Station.



Image 5: Depicts Train D 419 departing Downtown Largo Station.

At 21:49 hours, the Largo Terminal Supervisor contacted the train holding at signal G98-26 red in an attempt to identify the train's identification number. After several attempts, the train was identified as Train ID 419. Rail Vehicle Operator #2 advised the Largo Terminal Supervisor that signal G98-26 did not lead the train onto track 3. When inquired if Train ID 419 passed signal G98-26 red, Rail Vehicle Operator #2 confirmed the signal was passed. Rail Vehicle Operator #2 also indicated that they did not recall whether the signal was red or lunar.

According to the AIMS Playback, at 21:49, Train ID 419 overran the red signal G98-26 at Downtown Largo Station while Train ID 719 was servicing the station.

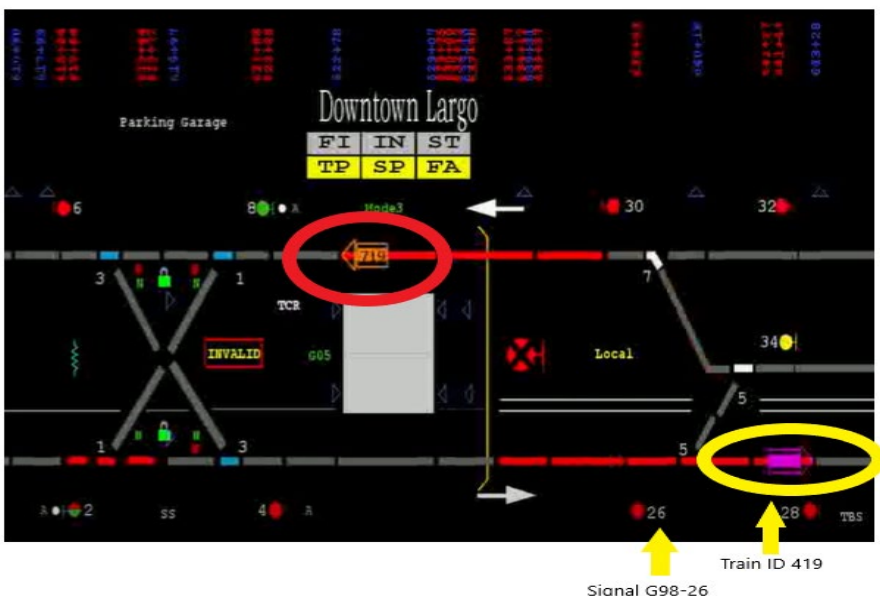


Image 6: The yellow circle depicts Train 719 at Downtown Largo Station track 2 at 21:49 hours.


















Status	Color	Home Signal Graphic	Turnback Signal Graphic
Stop	Red		
Clear	White		
Fleeted Clear	Green		
Fleeted Stop	Red over Green		
Requested	Yellow		
Selected Route Entrance	Yellow		
Exit Available	Yellow Flashing		
SAS_Overrun	Red Flashing		
Blocking	Light Blue		

Figure 2: AIMS signal representation.

After confirming that the signal was passed, the Largo Terminal Supervisor instructed Rail Vehicle Operator #2 to key down Lead Car #7196 and Rail Vehicle Operator #3 to key up Trailing Car #7198. Stop and Proceed was initiated as Train ID 419 began moving toward Downtown Largo

Station. After traveling 127 feet, Rail Vehicle Operator #3 keyed down Trailing Car #7198. The Rail Vehicle Operator #3 moved the train without speed commands or a permissive block, triggering an Improper Rail Vehicle Movement event.

At 21:49, the Operations Manager (OM) advised the Safety Information Official (SIO) of the Red Signa Overrun.

At 21:59 hours, the SIO advised the Safety Director On-Call of the Red Signal Overrun.

At 22:01 hours, the Largo Terminal Supervisor requested Foul Time from the Radio RTC to walk towards Train ID 419 on track one to investigate the incident, which was granted shortly thereafter. The Largo Terminal Supervisor also instructed Rail Vehicle Operator #2 to hold their location and notified the Button RTC to advise them of the incident.

At 22:02 hours, the Safety Specialist was advised by the SIO that a Red Signal Overrun had occurred and was promptly dispatched.

At 22:03 hours, Rail Vehicle Operators were advised that the MICC had control of the board at Largo Terminal.

CCTV revealed that switch 5A was set in the normal position.



Image 7: Depicts Train 419 at switch 5A after being pulled back.

At 22:39, a Safety Specialist arrived on the scene and requested Foul Time from the Radio RTC to investigate Train ID 419 on track 1 and document the scene. The Safety Specialist relinquished Foul Time at 22:49.

At 23:11 hours, ATC arrived on the scene and requested Foul Time from the Radio RTC to inspect switch 5A on track 1. At 00:25 hours, ATC relinquished Foul Time and reported no damage to switch 5A at the signal G98-26.

At 22:13 hours, the SIO advised the Washington Metrorail Safety Commission (WMSC) of the Red Signal Overrun, and an Event Scene Release (ESR) was granted at 22:14 hours.

At 00:17 hours, the Largo Terminal Supervisor and Rail Vehicle Operator #2 were removed from service for post-incident testing.

According to CCTV, at 02:04 hours, Train ID 419 was removed from service and moved to New Carrollton Yard for inspection, with 712 as the train ID, which subsequently changed to Train ID 801.



Image 8: Depicts the incident train departed Downtown Largo Station at 02:04 hours.

According to the SPOTS Report, Train ID 419 changed to Train ID 712 and then to Train ID 801, with the destination of New Carrollton Rail Yard.

The probable cause of the Red Signal Overrun event at Downton Largo Station on August 30, 2024, at Downtown Largo Station was the lack of situational awareness of the Rail Vehicle Operator #2 and failure to establish positive radio communications with the Largo Terminal Supervisor. A contributing factor was that the front interlocking was out of service for a switch point adjustment on track 2, from Chain Marker (CM) G2 615+00 to G2 625+00.

Select Platform: and/or Select ID: Leave blank to remove criteria
 and/or Select 4-digit car number: Leave blank to remove criteria
 Select Date: Aug 30 2024 Select Times (0-24HRS): From 21:00 To 29:00

Generate Report

ID	Platform	length	dcode	Right door open	Right door close	dwell	Left door open	Left door close	dwell	Head Arrived	Tail Cleared	cars	Headway door open to door open
419	C08-1	6	72	21:02:13	21:02:27	14				21:01:41	21:02:44	7196-7197 7213-7212 7199-7198	-
419	C07-1	6	72				21:03:53	21:04:06	13	21:03:21	21:04:34	7196-7197 7213-7212 7199-7198	1:40
419	C06-1	6	72	21:06:48	21:06:56	8				21:06:16	21:07:19	7196-7197 7213-7212 7199-7198	2:55
419	C05-1	6	72				21:08:57	21:09:14	17	21:08:29	21:09:41	7196-7197 7213-7212 7199-7198	2:09
419	C04-1	6	72				21:11:52	21:12:02	10	21:11:23	21:12:26	7196-7197 7213-7212 7199-7198	2:55
419	C03-1	6	72	21:13:39	21:13:49	10				21:13:02	21:14:08	7196-7197 7213-7212 7199-7198	1:47
419	C02-1	6	72	21:14:53	21:15:05	12				21:14:23	21:15:27	7196-7197 7213-7212 7199-7198	1:14
419	C01-1	6	72				21:16:26	21:16:37	11	21:15:53	21:17:03	7196-7197 7213-7212 7199-7198	1:33
419	D01-1	6	72				21:17:44	21:17:55	11	21:17:14	21:18:20	7196-7197 7213-7212 7199-7198	1:18
419	D02-1	6	72	21:19:20	21:19:30	10				21:18:44	21:19:57	7196-7197 7213-7212 7199-7198	1:36
419	D03-1	6	72				21:21:03	21:21:15	12	21:20:30	21:21:43	7196-7197 7213-7212 7199-7198	1:43
419	D04-1	6	72				21:22:21	21:22:31	10	21:21:53	21:22:57	7196-7197 7213-7212 7199-7198	1:18
419	D05-1	6	72				21:23:59	21:24:10	11	21:23:28	21:24:36	7196-7197 7213-7212 7199-7198	1:36
419	D06-1	6	72				21:25:38	21:25:47	9	21:25:07	21:26:07	7196-7197 7213-7212 7199-7198	1:39
419	D07-1	6	72				21:27:16	21:27:24	8	21:26:46	21:27:49	7196-7197 7213-7212 7199-7198	1:38
419	D08-1	6	72				21:29:15	21:29:25	10	21:28:41	21:29:53	7196-7197 7213-7212 7199-7198	1:59
419	G01-1	6	72				21:33:39	21:33:50	11	21:33:10	21:34:16	7196-7197 7213-7212 7199-7198	4:24
419	G02-1	6	72				21:36:17	21:36:26	9	21:35:46	21:36:48	7196-7197 7213-7212 7199-7198	2:38
419	G03-1	6	72				21:38:32	21:38:41	9	21:38:00	21:39:21	7196-7197 7213-7212 7199-7198	2:15
419	G04-1	6	72				21:41:28	21:41:48	22	21:40:57	21:43:02	7196-7197 7213-7212 7199-7198	2:54
419	G05-1	6	72	21:46:45	21:46:47	2	21:46:25	21:47:09	44	21:45:41	21:48:19	7196-7197 7213-7212 7199-7198	4:59
712	G05-1	6	99							23:20:40	23:25:23	7198-7199 7212-7213 7197-7196	-
801	G04-1	0	74							02:12:29	02:13:17	7198-7199 7212-7213 7197-7196	-
801	G03-2	0	74							02:15:45	02:16:35	7198-7199 7212-7213 7197-7196	-
801	G02-1	6	74							02:18:12	02:18:41	7198-7199 7212-7213 7197-7196	-
801	G01-1	6	74							02:20:43	02:21:17	7198-7199 7212-7213 7197-7196	-
801	D09-1	6	74							02:29:29	02:30:01	7196-7197 7213-7212 7199-7198	-
801	D10-1	6	74							02:31:05	02:31:36	7196-7197 7213-7212 7199-7198	-
801	D11-1	6	74							02:33:07	02:33:39	7196-7197 7213-7212 7199-7198	-
801	D12-1	6	74							02:36:15	02:36:47	7196-7197 7213-7212 7199-7198	-
801	D13-2	6	74							02:39:35	02:42:21	7196-7197 7213-7212 7199-7198	-

Table 1: Shows Train ID 419 changed.

Chronological Event Timeline

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

Time	Description
21:45:03 hours	<u>Train ID 419</u> : Advised they were in approach to Downtown Largo. <u>Radio RTC</u> : Acknowledged. [Radio, LGO]
21:46:05 hours	Train ID 419 began moving towards signal G98-26. [Oracle Report]
21:47:56 hours	<u>Largo Terminal Supervisor</u> : Train ID 719 granted a permissive block to the 8-car marker from track 3 to track 2. Train ID 719: Acknowledged. [Radio, LGO]
21:48:55 hours	Oracle Report reveals that Train ID 419 occupied the track circuit 5AAT located after signal G98-26 and overran signal G98-26. [Oracle Report]
21:49:11 hours	<u>Largo Terminal Supervisor</u> : Instructed Train ID 419 at G98-26 to identify themselves and to stand by at the signal. Train ID 419: No response. [Radio, LGO]
21:49:36 hours	Largo Terminal Supervisor: Informed the Button RTC that they were unable to set a lunar from signal G98-26 to G98-34. Button RTC: Advised that the train passed the red signal. [Phone]
21:49:50 hours	<u>Rail Vehicle Operator #2</u> : Attempted to contact the Largo Terminal Supervisor. Largo Terminal Supervisor: No response. [Radio, LGO]
21:50:16 hours	<u>Rail Vehicle Operator #2</u> : Advised the Largo Terminal Supervisor that signal G98-26 did not lead the train to Track 3. Largo Terminal Supervisor: No response. [Radio, LGO]
21:50:26 hours	<u>Largo Terminal Supervisor</u> : Inquired if Train ID 419 passed the signal G98-26. <u>Rail Vehicle Operator #2</u> : Advised that they had passed the signal G98-26. [Radio, LGO]

Time	Description
21:51:13 hours	<u>Rail Vehicle Operator #2</u> : They stated that they did not see red, but they thought they saw a lunar. <u>Largo Terminal Supervisor</u> advised that signal G98-26 was passed. [Radio, LGO]
21:51:21 hours	<u>Largo Terminal Supervisor</u> : Inquired who was in the Trailing Car. <u>Rail Vehicle Operator #3</u> : Acknowledged. [Radio, LGO]
21:51:59 hours	<u>Largo Terminal Supervisor</u> : Instructed the Rail Vehicle Operator #3 to key up and bring the train back to the platform. <u>Rail Vehicle Operator #3</u> : Acknowledged. [Radio, LGO]
21:52:51 hours	<u>Largo Terminal Supervisor</u> : Advised the Rail Vehicle Operator #2 that a lunar was not set. <u>Rail Vehicle Operator #2</u> : No response [Radio, LGO]
21:53:05 hours	<u>Rail Vehicle Operator #2</u> : Advised Rail Vehicle Operator #3 to keep going. <u>Largo Terminal Supervisor</u> : Requested that they not keep moving the train and identify who was operating on the trailing end of the train. <u>Rail Vehicle Operator #3</u> : Identified himself. <u>Largo Terminal Supervisor</u> : Requested they stand by. [Radio, LGO]
21:55:25 hours	<u>OM</u> : Advised the SIO of the Red Signal Overrun. <u>SIO</u> : Acknowledged. [Phone, OM]
21:58:28 hours	<u>Radio RTC</u> : Requested that the Largo Terminal Supervisor physically inspect if Train ID 419 passed the G98-26 signal. [Phone]
21:59:23 hours	<u>SIO</u> : Advised the SDOC of the incident. <u>SDOC</u> : Acknowledged. [Phone, SIO]
22:01:12 hours	<u>SIO</u> : Advised the Safety Specialist of the Red Signal Overrun. <u>Safety Specialist</u> : Acknowledged and was en route. [Phone, SIO]
22:01:32 hours	<u>Largo Terminal Supervisor</u> : Requested FT on track 1. <u>Radio RTC</u> : Acknowledged. [Radio, OPS2]
22:03:15 hours	<u>Radio RTC</u> : Advised that Central had the board at Downtown Largo Station, and speed will be governed by Central, and all operators are to hold. [Radio, OPS2]
22:03:52 hours	<u>Radio RTC</u> : Granted the Largo Terminal Supervisor FT on track 1. <u>Largo Terminal Supervisor</u> : Acknowledged. [Radio, OPS2]
22:08:57 hours	<u>Largo Terminal Supervisor</u> : Advised the Radio RTC that Train ID 419 had passed signal G98-26 red and did not cross over the switch. <u>Radio RTC</u> : Acknowledged. [Radio, OPS2]
22:13:27 hours	<u>SIO</u> : Advised the WMSC of the Red Signal Overrun. The ESR was granted at 2214. <u>SIO</u> : Acknowledged. [Phone, SIO]
22:39:29 hours	<u>Safety Specialist</u> : Arrived on the scene. [CCTV]
22:41:15 hours	<u>Safety Specialist</u> : Requested FT to enter the roadway and investigate the incident. <u>Radio RTC</u> : Granted permission to enter the roadway. [Radio, OPS2]
22:49:39 hours	<u>Safety Specialist</u> : Relinquished FT. <u>Radio RTC</u> : Acknowledged. [Radio, OPS2]
23:11:11 hours	<u>ATC</u> : Arrived on the scene. [CCTV]
23:14:10 hours	<u>Safety Specialist</u> : Advised that the investigation had concluded. <u>Radio RTC</u> : Relinquished FT. <u>Safety Specialist</u> : Acknowledged. [Radio, OPS2]
23:17:45 hours	<u>Radio RTC</u> : Instructed the Rail Operations Supervisor to key up on the Downtown end and relinquished FT. <u>Largo Terminal Supervisor</u> : Acknowledged. [Radio, OPS2]

Time	Description
23:19:11 hours	<u>Largo Terminal Supervisor</u> : Advised they were keyed up on the Downtown end. <u>Radio RTC</u> : Granted an absolute block to move the train on track 1 to the 8-car marker. <u>Largo Terminal Supervisor</u> : Acknowledged. [Radio OPS2]
23:21:54 hours	<u>Largo Terminal Supervisor</u> : Advised that the train was safely on the platform. <u>Radio RTC</u> : Acknowledged. [Radio, OPS2]
23:22:21 hours	<u>ATC</u> : Requested FT to inspect switch G05. <u>Radio RTC</u> : Granted FT track 1 to inspect switch G-05. <u>ATC</u> : Acknowledged. [Radio, OPS2]
23:24:43 hours	<u>Radio RTC</u> : Granted ATC FT at signal G98-26 to inspect switch G05. <u>ATC</u> : Acknowledged. [Radio, OPS2]
00:17:41hours	<u>OM</u> : Advised the SIO that the Largo Terminal Supervisor and Rail Vehicle Operator #2 were removed from service. <u>SIO</u> : Acknowledged. [Phone, OM]
00:25:25 hours	<u>ATC</u> : Relinquished FT on track 1. <u>Radio RTC</u> : Acknowledged. [Radio, OPS2]
00:43:44 hours	<u>ATC</u> : Requested permission to take control of the panel within the blockhouse. <u>Radio RTC</u> : Granted ATC permission. <u>ATC</u> : Acknowledged. [Radio, OPS2]
01:12:56 hours	<u>Radio RTC</u> : Instructed RTRA located at Morgan Boulevard Station to board the train on track 2 to cushion down to Largo track 1, to take the incident train to New Carrollton Station. <u>RTRA</u> : Acknowledged. [Radio, OPS2]
01:17:27 hours	<u>Radio RTC</u> : Inquired with ATC if they could move trains from track 2 to track 3 utilizing switch 7 and switch 5B in reverse to place a train in the pocket track. <u>ATC</u> : Advised that the move was safe. <u>Radio RTC</u> : Acknowledged. [Radio, OPS2]

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

The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)

Adopted from CMOR IIT report with minor formatting and grammatical edits:

The Incident Investigation Team (IIT) has completed the analysis of data retrieved from Train ID419, which was reported for a Red Signal Overrun at Downtown Largo on 08-30-2024.

Based on the ER, at 21:48 hours, Train ID 419 departed Downtown Largo Station on track 1 in the direction of the G98 tail track without speed commands.

After Train ID 419 serviced Downtown Largo Station, the Train ID 419 was keyed down and keyed up, then Stop and Proceed was initiated, the Master Controller was placed in the P1-P4 power position, and the Train ID 419 began to move outbound with no speed commands. Train ID 419 passed signal red G98-26 at a speed of 12.5 MPH, and the interlocking switch 5A at a speed of 13.2 MPH and came to a complete stop 162 feet beyond signal G98-26. Train ID 419 reversed ends and keyed up 7198 (trailing car) before moving 127 feet.

Based on Vehicle Monitoring and Diagnostic System (VMDS) logs, Train ID 419 performed as designed and had no faults that contributed to the Red Signal Overrun.

Timeline Of Events :

Time	Description of Events	Train Speed	Master Controller	ADU Regulated Speed	Limiting Speed	Chain Marker.
21:45:48.5	The Train ID 419 arrived at Largo Station on Track #1, car 7196 was on lead.	0 MPH	B1-B3	0 MPH	0 MPH	628+97
21:46:02.4	Left side doors was opened to service station.	0 MPH	B5	0 MPH	0 MPH	628+97
21:46:04.6	Train keyed down on lead car 7196.	0 MPH	B5	0 MPH	0 MPH	628+97
21:46:20.06	Train keyed up on lead car 7196.	0 MPH	B5	0 MPH	0 MPH	628+97
21:46:47.81	Left side doors closed, all doors closed and locked.	0 MPH	B5	0 MPH	0 MPH	628+97
21:47:01.54	Stop and proceed was initiated.	0 MPH	B5	0 MPH	1 MPH	628+97
21:47:08.08	The Master Controller placed in the P1-P4 Power Mode and train began to move.	0.14 MPH	P1-P4	0 MPH	1 MPH	628+97
21:47:26.5	Train came to a complete after traveling 238 feet.	0 mph	B5	0 mph	1 mph	631+35
21:47:36.1	The Master Controller placed in the P1-P4 Power Mode and train began to move.	0.12 MPH	P1-P4	0 MPH	1 MPH	631+35
21:48:31.4	Train passed RED signal G98-26 at speed of 12.5 Mph; Master controller placed at Coast position.	12.5 MPH	Coast	0 MPH	1 MPH	640+95
21:48:32.2	Train passed the interlocking switch SA at speed of 13.2 Mph; Master controller placed at Coast position	13.2 MPH	Coast	0 MPH	1 MPH	641+13
21:48:44.05	Train came to a complete stop 162 feet after passing Red Signal G98-26. Master controller placed at B4.	0 MPH	B4	0 MPH	1 MPH	642+57
21:49:00.77	Lead Car 7196 was keyed down.	0 MPH	B5	0 MPH	0 MPH	642+57
21:51:49.48	Car 7198 was keyed Up.	0 MPH	B5	0 MPH	0 MPH	636+57
21:51:55.99	Stop and proceed was initiated.	0 MPH	B5	0 Mph	1 MPH	636+57
21:51:59.12	The Master Controller placed in the P1-P4 Power Mode and train began to move in the direction of Largo Station.	0.24 MPH	P1-P4	0 Mph	1 MPH	636+57
21:53:20.57	Train came to a complete stop after traveling 127 feet.	0 Mph	B5	0 MPH	1 MPH	635+30
21:53:29.51	Train keyed down on car 7198.	0 MPH	B4	0 MPH	1 MPH	635+30

Table 2: The above table depicts the timeline of events of Train ID 419.

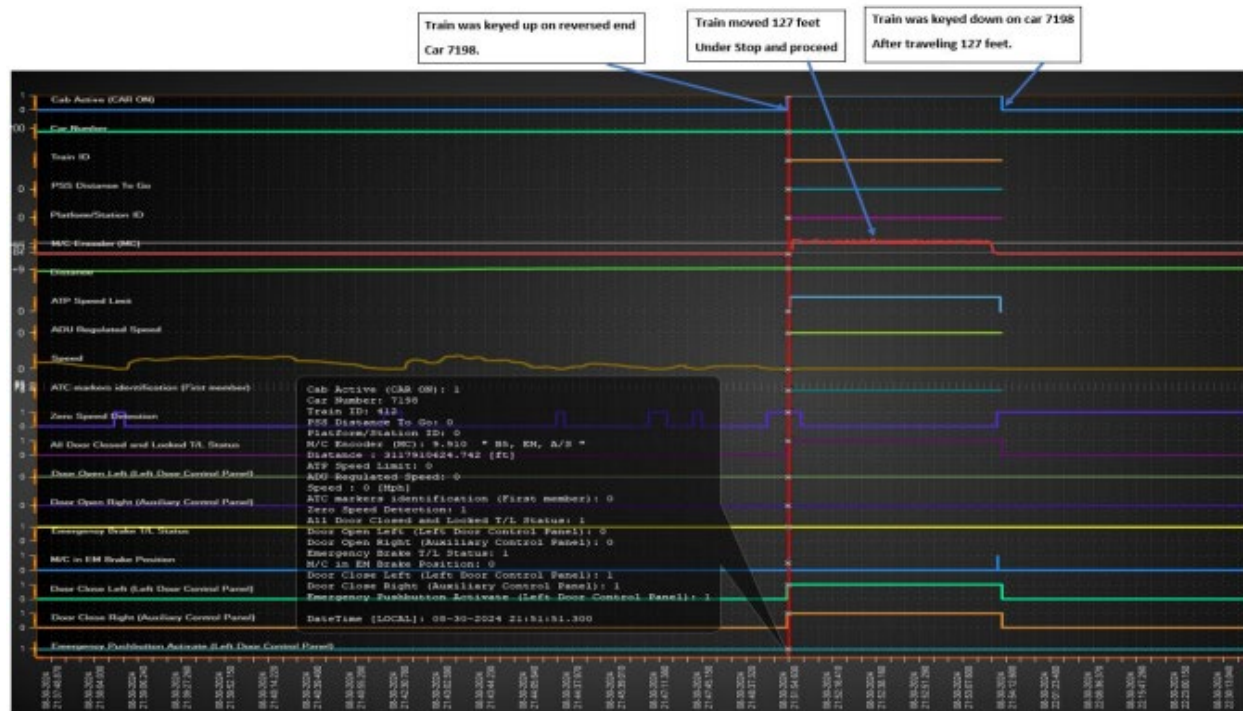
R7196 ER Graph:



Graph 1: The above graph depicts Railcar 7196 (Lead Car) data.

Incident Date: August 30, 2024 Time: 21:48 hours
Final Report – Red Signal Overrun Rev. 1
E24687

Drafted By: SAFE 706- 10/25/2024
Reviewed By: SAFE 702- 10/27/2024
Approved By: SAFE 707 – 11/01/2024



Graph 2: The above graph depicts Railcar 7198 (Trailing Car) data.

Office of Systems Maintenance, Office of Radio Communications (COMR)

COMR performed a comprehensive radio check at the Downtown Largo Station and reported that all tests were loud and clear.

Interview Findings and Written Statements

As part of the investigation launched into the event, SAFE interviewed three (3) people. The interviews 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.

Largo Terminal Supervisor

- Largo Terminal Supervisor stated they have been a Terminal Supervisor for one year.
- Largo Terminal Supervisor stated they previously served as a Railcar Cleaner and Custodian.
- Largo Terminal Supervisor stated that they are assigned to the Largo Division and were working overtime on the day of the incident.
- Largo Terminal Supervisor stated Train ID 419 was to move from track 1 to track 2 utilizing the tail track.
- Largo Terminal Supervisor stated that Train ID 419 moved the train without permission.
- Largo Terminal Supervisor stated that their interlocking board illuminated red.
- Largo Terminal Supervisor stated they advised the Button RTC of the incident.
- Largo Terminal Supervisor stated that the front interlocking was out of service.

Rail Vehicle Operator #2

- Rail Vehicle Operator #2 stated they have been a train operator for one year.
- Rail Vehicle Operator #2 stated they had previously operated the bus.
- Rail Vehicle Operator #2 stated they were working overtime and were not familiar with the signals at Downtown Largo Station.
- Rail Vehicle Operator #2 stated that their duties on the day of the incident were to move trains from track 1 to track 2 due to the front interlocking being out of service.
- Rail Vehicle Operator #2 stated they relieved Rail Vehicle Operator #1 from Train ID 419 on track 1.
- Rail Vehicle Operator #2 stated they requested an absolute block from the Largo Terminal Supervisor to ensure safe movement.
- Rail Vehicle Operator #2 stated communication issues.
- Rail Vehicle Operator #2 stated they noticed signal G98-26 was passed when they observed the incorrect rail alignment.
- Rail Vehicle Operator #2 stated they were not sure if they had a lunar or a red aspect.

Rail Vehicle Operator #3

- Rail Vehicle Operator #3 stated they received their manifest from the Largo Terminal Supervisor and proceeded to platform track 1 as directed (AD).
- Rail Vehicle Operator #3 stated they were assisting with moving trains from track 1 to track 2.
- Rail Vehicle Operator #3 stated were aware of the front interlocking being out of service.
- Rail Vehicle Operator #3 stated they were operating on the trailing end of Train ID 419, a six-car train.
- Rail Vehicle Operator #3 stated that when they boarded Train ID 419 when doors closed, they hit the yard horn.
- Rail Vehicle Operator #3 stated that when Train ID 419 stopped, they keyed up.
- Rail Vehicle Operator #3 stated they keyed up to communicate with Rail Vehicle Operator #2.
- Rail Vehicle Operator #3 stated they keyed down and went to check on Rail Vehicle Operator #2 in the Lead Car.
- Rail Vehicle Operator #3 stated they could hear radio communications with the Largo Terminal Supervisor and Rail Vehicle Operator #2.
- Rail Vehicle Operator #3 stated they were familiar with the Downtown Largo Station signals.
- Rail Vehicle Operator #3 stated that radio communications are poor in certain locations within the station.
- Rail Vehicle Operator #3 stated they keyed up and moved Train ID 419.
- Rail Vehicle Operator #3 stated they did not recall if the Largo Terminal Supervisor instructed them to move Train ID 419.
- Rail Vehicle Operator #3 stated they were not aware of the signal being passed.
- Rail Vehicle Operator #3 admitted to moving Train ID 419 without permission from the Largo Terminal Supervisor.

Weather

On August 30, 2024, at the time of the incident, NOAA recorded the temperature as 71°F, with overcast winds of 7 MPH and 93% humidity. Downtown Largo is an outdoor station. The weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Camp Springs / Andrews Air Force Base.

Related Rules and Procedures

3.3 - Signals Requiring a Stop Rail vehicles shall not be operated past or closer than a point 10 feet in the approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

8.3.1 - When trains are operated against the normal direction of traffic, the Rail Vehicle Operator shall alert customers on the platform by sounding the horn in a series of short blasts prior to station entry and until the train is berthed in the station.

8.4.8 - At staffed terminal stations, Rail Vehicle Operators shall contact the Terminal Supervisor for permission to depart the terminal.

8.4.9 - Terminal Supervisors shall ensure that the train has a lunar signal and correct alignment before giving the Rail Vehicle Operator permission to depart the terminal with speed commands.

Human Factors

Evidence of Fatigue

Largo Terminal Supervisor

Safety examined signs and symptoms of fatigue that may have been present during the incident. No video of the person involved was available to ascertain whether signs of fatigue were present. The Largo Terminal Supervisor reported feeling fully alert during the incident and experiencing no symptoms of fatigue in the time leading up to the incident.

Rail Vehicle Operator #2

Safety examined signs and symptoms of fatigue that may have been present during the incident. No video of the involved person was available to ascertain whether signs of fatigue were present. The Rail Vehicle Operator #2 reported feeling fully alert during the incident. The Rail Vehicle Operator #2 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Rail Vehicle Operator #3

The biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied for Rail Vehicle Operator #3.

Fatigue Risk

Largo Terminal Supervisor

Safety evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the evening shift in the days leading up to the incident. The employee was awake for twelve hours and eighteen minutes at the time of the incident. The employee reported eighty hours of sleep in the 24 hours preceding the incident. The off-duty period was eighty-six hours, which provides an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The employee reported no issues with sleep.

Rail Vehicle Operator #2

Safety evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the evening shift in the days leading up to the incident. The employee was awake for ten hours and seventeen minutes at the time of the incident. The employee reported eight hours of sleep in the 24 hours preceding the incident. The off-duty period was twelve hours, which provides an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The employee reported no issues with sleep.

Rail Vehicle Operator #3

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

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Largo Terminal Supervisor complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

WMATA's Drug and Alcohol Program determined that the Rail Vehicle Operator #2 complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Post-incident toxicology Testing was not conducted for Rail Vehicle Operator #3.

Findings

- Train ID 419 overran signal G98-26 red.
- The Largo Terminal Supervisor never gave Train ID 419 a permissive block.
- The front interlocking was out of service.
- Rail Vehicle Operator #1 keyed down and Rail Vehicle Operator #2 keyed up Train 419 in lead car 7196.
- Stop and Proceed was initiated.
- Train ID 419 came to a complete stop 162 feet after passing signal G28-26 red.
- Lead car 7196 was keyed down, and the trailing car 7198 was keyed up.
- Stop and Proceed was initiated.
- Train ID 419 began to move in the direction of Downtown Largo Station.
- Train ID 419 came to a complete stop after traveling 127 feet and keyed back down.

Immediate Mitigation to Prevent Recurrence

- ATC personnel responded to inspect the equipment.
- The Largo Terminal Supervisor was removed from service post-incident testing.
- Rail Vehicle Operator #2 was removed from service post-incident testing.

Probable Cause Statement

The probable cause of the Red Signal Overrun that occurred Friday, August 30, 2024, at Downtown Largo Station was Rail Vehicle Operator #2's lack of situational awareness and failure to establish positive radio communications with the Largo Terminal Supervisor.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
119475_SAF ECAPS_RT RA_001	Rail Vehicle Operator #2 attended refresher training.	RTRA	Completed
119475_SAF ECAPS_RT RA_001	Rail Vehicle Operator #3 received written re-instruction and mandatory refresher training.	RTRA	Completed

Appendices

Appendix A – Interview Summaries

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.

Largo Terminal Supervisor

On August 30, 2024, a virtual interview was conducted with a Largo Division Terminal Supervisor as part of an ongoing investigation in compliance with WMATA Policy Instruction 10.4. Safety Investigations led the interview, which included representatives from WMATA and the WMSC. The recording and transcript of this interview are confidential and protected under WMATA's security and privacy policies.

The Largo Terminal Supervisor, stationed at Downtown Town Largo, has held their current position for one year and confirmed a current RWP Level 2 certification. Before this role, the Largo Terminal Supervisor served as a Railcar Cleaner and Custodian. When asked about sleep patterns, the Largo Terminal Supervisor reported no recent changes, typically getting 8 hours of sleep on workdays, with no personal commitments that would interfere with rest.

On the day of the incident, the Largo Terminal Supervisor began their overtime shift at 16:00 hours and ended at 00:00 hours the following morning. According to the Largo Terminal Supervisor, Train ID 419 was being moved from Track 1 to Track 2 when it entered Downtown Largo Station, stopped at the 8-car marker, and proceeded towards the tail track without first obtaining proper authorization.

The Largo Terminal Supervisor reported that when the interlocking board illuminated red, they were unable to set a route for Train ID 419 to cross over from Track 1 to Track 3. When asked if the Train Operator (Lead Car) had passed signal G98-26, the Train Operator (Lead Car) confirmed that they had. The Largo Terminal Supervisor subsequently advised the MICC and proceeded with Train ID 419 to investigate.

The Largo Terminal Supervisor stated that the front interlocking was out of service. As a result, trains were expected to leave the station on Track 1, head towards the tail track, and cross over from Track 1 to Track 3 at G98-26. They are granted a permissive block to transition from Track 3 to Track 2, ultimately returning to Downtown Largo Station.

Rail Vehicle Operator #2

On August 30, 2024, a virtual interview was conducted with a West Falls Church Division Rail Vehicle Operator as part of an ongoing investigation in compliance with WMATA Policy Instruction 10.4. Safety Investigations led the interview, which included representatives from WMATA and the WMSC. The recording and transcript of this interview are confidential and protected under WMATA's security and privacy policies.

Rail Vehicle Operator #2 has held its current position for one year and confirmed a current RWP Level 2 certification. Before this role, Rail Vehicle Operator #2 served as a Bus Operator. When asked about sleep patterns, Rail Vehicle Operator #2 reported no recent changes, typically getting 8 hours of sleep on workdays, with no personal commitments that would interfere with rest.

On the day of the incident, Rail Vehicle Operator #2 commenced an overtime shift at 14:00 hours and concluded at 02:00 hours the following morning. Their responsibilities included moving trains from Track 1 to Track 2 due to the front interlocking being out of service.

During their shift, Rail Vehicle Operator #2 took over operations for Train ID 419, a double-ended train, when it was at the 8-car marker. They requested an absolute block from the Largo Terminal Supervisor to ensure safe movement. However, due to communication issues, they were uncertain if the absolute block was granted.

The Rail Vehicle Operator #2 observed passing signal G98-26 when they noticed an incorrect rail alignment, which led them to believe they had a lunar signal. They confirmed with the Largo Terminal Supervisor that they had actually passed the signal but did not recall if signal G98-26 displayed a red aspect or lunar.

The Rail Vehicle Operator #2 was instructed by the Largo Terminal Supervisor not to move Train ID 419.

Rail Vehicle Operator #3

On September 16, 2024, a virtual interview was conducted with a Largo Division Rail Vehicle Operator as part of an ongoing investigation in compliance with WMATA Policy Instruction 10.4. Safety Investigations led the interview, which included representatives from WMATA and the WMSC. The recording and transcript of this interview are confidential and protected under WMATA's security and privacy policies.

Rail Vehicle Operator #3 is a WMATA employee with 1.33 years of experience as a Rail Vehicle Operator and confirmed a current RWP Level 2 certification. When asked about sleep patterns, Rail Vehicle Operator #3 reported no recent changes, typically getting 9.5 hours of sleep on workdays, with no personal commitments that would interfere with rest.

During the interview, Rail Vehicle Operator #3 reported that their overtime shift began at 06:00 and ended at 18:00. They stated that they were assisting other Rail Vehicle Operators in moving trains from track 1 to track 2 due to the front interlocking being out of service. Rail Vehicle Operator #3 stated that when they boarded Train ID 419, a six-car train, when the doors closed, they hit the yard horn.

Rail Vehicle Operator #3 stated that when Train ID 419 stopped, they keyed up on the trailing end to communicate with Rail Vehicle Operator #2 because they did not respond on the portable radio. After communicating with Rail Vehicle Operator #2, they keyed down and proceeded to the Lead Car to check on Rail Vehicle Operator #2. Rail Vehicle Operator #3 stated they did not recall if the Largo Terminal Supervisor instructed them to move Train ID 419.

Rail Vehicle Operator #3 stated that they were familiar with operating at the Downtown Largo Station and that radio communications are poor in certain areas of the station.

Appendix B – Ops Reports



Washington Metropolitan Area Transit Authority Maintenance and Material Management System MICC Rail Approved Incident Report

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MX76PROD

Incident Number : 8791781		SMS Number :	
Terminal Supervisor reported train 419 overran G98 26 signal. Terminal supervisor reported he was unable to set 26 to 34.			
<u>Date/Time</u> 08/30/2024 21:53	<u>Station Location</u> G05: (LARGO TOWN CENTER STATION)	<u>Reported By</u>	
<u>Trouble Code</u> RSIG RED SIGNAL OVERRUN	<u>Location Details</u>	<u>Notifications</u>	
<u>Responsibility Code</u> RTR RAIL TRANSPORTATION	<u>Direction</u> OUTBOUND	<u>Resolved By</u>	
<u>Train ID</u> 419	<u>Track Number</u> N/A	<u>Approved/Closed by</u>	
<u>Line</u> BLU	<u>Chain Markers</u>	<u>Org. OCC</u> ROCC	

Delays in Minutes		
Line Delay	Train Delay	Passenger Delay
11	11	11

Trips Modified				
Partial	Late Dispatch	Rerouted	Not Dispatched	Offloads
1	0	0	1	1

Incident Chronology (Timeline)				
Time	Add'l Pass. Delays	Add'l Trouble	Incident Level Code	Description
21:53	11	RSIG	A1	Terminal Supervisor reported train 419 overran G98 26 signal. Terminal supervisor reported he was unable to set 26 to 34.
22:00				Single tracking was established between Morgan Boulevard and Downtown Largo via track two. Train 421 first train to single track.
22:02				Train 719 was put in service at Capitol Heights track 2. 450 to Ashburn.
22:03				Foul time granted to [REDACTED] to the incident train to perform a ground walk around.
22:06				Train 621 was turned around track one Morgan Blvd. as 644 to Ashburn.
22:09				Terminal Supervisor [REDACTED] verified train was past G99 26 signal, but not over 5 switch.
22:42				Safety unit [REDACTED] is on the scene at G05 track one to investigate the red signal overrun.
23:13				Safety unit [REDACTED] stated that the incident train is approx. ten feet away from the switch it is safe for the train to move back towards the platform.
23:22				Incident train was moved back to the platform by unit [REDACTED] RTRA supervisor [REDACTED]
23:25				ATC unit [REDACTED] is under foul time to inspect switch 5 at G98 26.
00:25				ATC unit [REDACTED] relinquished foul time safely back on the platform no damaged reported to switch 5 at G98 26 signal.

Document 1: MICC incident report. (Redacted)

Incident Date: August 30, 2024 Time: 21:48 hours
Final Report – Red Signal Overrun Rev. 1
E24687

Drafted By: SAFE 706- 10/25/2024
Reviewed By: SAFE 702- 10/27/2024
Approved By: SAFE 707 – 11/01/2024

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Appendix C – Work Orders



Washington Metropolitan Area Transit Authority Maintenance and Material Management System Work Order Details

Page 1 of 1
MXAZP

Work Order #: 18886025
Type: CM

18886025

Status: CLOSE
09/02/2024 05:37

Work Description: G05 Safety request Radio operational test in Statiuona areaTracks1,2 & #, extend test to OPS#2
Job Plan Description:

Work Information									
Asset: 60368	RADIO, CRCS, TUNNEL INFRASTRUCTURE, G04	Owning Office: COMM-TSSM-RADO	Parent:						
Asset Tag:		Maintenance Office: COMM-TSSM-RADO	Create Date: 09/01/2024 09:55						
Asset S/N: CRCSTG04		Labor Group: COMM-R3RADO	Actual Start: 09/01/2024 13:19						
Location: 10281	G04, MORGAN BOULEVARD, STATION, PLATFORM, ROOM 111, COMMUNICATIONS ROOM	Crew:	Actual Comp: 09/01/2024 13:19						
Work Location:		Lead: [REDACTED]	Item: N60040103						
Failure Class: COMR004	CRCS TUNNEL EQUIPMENT	GL Account: WMATA-02-33540-50499280-042-*****-OPR**	Target Start:						
Problem Code: 3662	DOWNLINK COMM PROBLEM	Supervisor: [REDACTED]	Target Comp:						
Requested By: [REDACTED]		Requestor Phone: [REDACTED]	Scheduled Start:						
Chain Mark Start:		Chain Mark End:							
Create-Mileage: 0.0		Complete-Mileage: 0.0							
Task IDs									
Task ID									
10 We performed CRCS radio check at G05 station entrance, Mezzanine, Kiosk, and platform areas. All tests are loud and clear.									
Component:	Work Accompl:	Reason:	Status: CLOSE	Position:	Warranty?: N				
Actual Labor									
Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost
10	[REDACTED]	09/01/2024	09/01/2024	12:00	14:00	Y	02:00	00:00	\$99.25
10	[REDACTED]	09/01/2024	09/01/2024	12:00	14:00	Y	02:00	00:00	\$98.77
Total Actual Hour/Labor:							04:00	00:00	\$198.02
Failure Reporting									
Cause	Remedy	Supervisor	Remark Date						
3192 TESTED / INSPECTED	3191 TESTED - NO TROUBLE FOUND	[REDACTED]	09/02/2024						
Remarks: Radio checks loud and clear									

WT_plust_woprnt.rptdesign 10/29/2024 07:23

Document 2: Office of Systems Maintenance, Office of Radio Communications (COMR). (Redacted)



Washington Metropolitan Area Transit Authority Maintenance and Material Management System Work Order Details

Page 1 of 1
MX76PROD

Work Order #: 18878508
Type: ACT



Status: WAPPR
08/30/2024 10:35

Work Description: ATCS, G05, SWITCH POINT ADJUSTMENT, TRACK#2, G2-615+00 TO G2+625+00
Job Plan Description:

Work Information									
Asset: ATCSG05	G05, ATCS, TRAIN CONTROL ROOM, INTERLOCKING, VE	Owning Office: ATCS-TSSM	Parent:						
Asset Tag: ATCSG05		Maintenance Office: ATCS-TSSM-DRFO	Create Date: 08/30/2024 10:35						
Asset S/N: TCRG05		Labor Group: ATCS-D3G05	Actual Start:						
Location: 10555	G05, DOWNTOWN LARGO, STATION, PLATFORM, ROOM 221, TRAIN CONTROL ROOM (G05 OB BT)	Crew:	Actual Comp:						
Work Location:		Lead:	Item: ATCSV0984						
Failure Class:		GL Account: WMATA-02-33530-50499270-042-*****-OPR**	Target Start: 09/06/2024 11:05						
Problem Code:		Supervisor:	Target Comp:						
Requested By: [REDACTED]		Requestor Phone: [REDACTED]	Scheduled Start:						
Create-Mileage: 0.0		Complete-Mileage: 0.0							
Failure Reporting									
Cause	Remedy	Supervisor	Remark Date						
Remarks:									

Document 3: Automatic Train Control Section (ATCS) Maximo Work Order. (Redacted)

Incident Date: August 30, 2024 Time: 21:48 hours
Final Report – Red Signal Overrun Rev. 1
E24687

Drafted By: SAFE 706- 10/25/2024
Reviewed By: SAFE 702- 10/27/2024
Approved By: SAFE 707 – 11/01/2024

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Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
Work Order Details

Page 1 of 2
MX76PROD

Work Order #: 18889989
Type: PM



Status: INPRG
09/11/2024 13:11

Work Description: ATCS, G05 (FRONT), SWITCH MONTHLY INSPECTION, 1,3, DAY, STATUTORY

Job Plan Description: ATCS, SWITCH MONTHLY INSPECTION

On 4-12-16, removed reference to Joint Interlocking Inspections. TRST
initiative canceled due to lack of participation from TRST. PAF

Work Information			
Asset: ATCSG05	G05, ATCS, TRAIN CONTROL ROOM, INTERLOCKING, VE	Owning Office: ATCS-TSSM	Parent:
Asset Tag: ATCSG05		Maintenance Office: ATCS-TSSM-DRFO	Create Date: 09/03/2024 08:08
Asset S/N: TCRG05		Labor Group: ATCSD3G05	Actual Start: 09/11/2024 13:11
Location: 10555	G05, DOWNTOWN LARGO, STATION, PLATFORM, ROOM 221, TRAIN CONTROL ROOM (G05 OB BT)	Crew: ATCSG1S2	Actual Comp:
Work Location:		Lead:	Item: ATCSV0984
Failure Class:		GL Account: WMATA-02-33530-50499270-042-*****_OPR**	
Problem Code:		Supervisor:	Target Start: 09/08/2024 00:00
Requested By:		Requestor Phone:	Target Comp: 09/15/2024 00:00
			Scheduled Start:
Create-Mileage: 0.0		Complete-Mileage: 0.0	

Task IDs						
Task ID						
10	ENSURE ALL PROCEEDURES ARE ON HAND					
Component:	Work Accom:	Reason:	Status: INPRG	Position:	Warranty?: N	
20	ENSURE ALL SAFETY EQUIPMENT AND TOOLS ARE ON HAND					
Component:	Work Accom:	Reason:	Status: INPRG	Position:	Warranty?: N	
30	PERFORM SWITCH MONTHLY INSPECTION					
	PERFORM SWITCH MONTHLY INSPECTION PER THE ATTACHED TEST PROCEDURE AND RECORD THE TEST RESULT ON THE ATTACHED FORM					
Component:	Work Accom:	Reason:	Status: INPRG	Position:	Warranty?: N	
40	LUBRICATE SWITCH MACHINE & LAYOUT PER ATC-1007					
Component:	Work Accom:	Reason:	Status: INPRG	Position:	Warranty?: N	
50	Tasks 10,20,30 and 40 completed (SW 3A and 3B)					

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09/12/2024 07:34

Document 4: Automatic Train Control Section (ATCS) Maximo Work Order. Page 1 of 2. (Redacted)

Incident Date: August 30, 2024 Time: 21:48 hours
Final Report – Red Signal Overrun Rev. 1
E24687

Drafted By: SAFE 706- 10/25/2024
Reviewed By: SAFE 702- 10/27/2024
Approved By: SAFE 707 – 11/01/2024

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Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
Work Order Details

Page 2 of 2
MX76PROD

Work Order #: 18889989
Type: PM



Status: INPRG
09/11/2024 13:11

Work Description: ATCS, G05 (FRONT), SWITCH MONTHLY INSPECTION, 1,3, DAY, STATUTORY
Job Plan Description: ATCS, SWITCH MONTHLY INSPECTION

Task IDs										
Task ID		Work Accompl:		Reason:		Status: INPRG		Position:		Warranty?: N
Actual Labor										
Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost	
50		09/11/2024	09/11/2024	08:00	14:00	N	00:00	06:00	\$391.79	
50		09/11/2024	09/11/2024	08:00	14:00	N	00:00	06:00	\$382.23	
50		09/11/2024	09/11/2024	08:00	14:00	N	00:00	06:00	\$391.79	
50		09/11/2024	09/11/2024	08:00	14:00	N	06:00	00:00	\$229.34	
50		09/11/2024	09/11/2024	08:00	14:00	N	06:00	00:00	\$266.42	
50		09/11/2024	09/11/2024	08:00	14:00	N	06:00	00:00	\$297.76	
Total Actual Hour/Labor:							18:00	18:00	\$1,959.32	
Failure Reporting										
Cause		Remedy		Supervisor		Remark Date				
Remarks:										

WT_plust_woprint.rptdesign

09/12/2024 07:34

Document 5: Automatic Train Control Section (ATCS) Maximo Work Order. Page 2 of 2. (Redacted)

Incident Date: August 30, 2024 Time: 21:48 hours
Final Report – Red Signal Overrun Rev. 1
E24687

Drafted By: SAFE 706- 10/25/2024
Reviewed By: SAFE 702- 10/27/2024
Approved By: SAFE 707 – 11/01/2024

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Appendix D – Scene Photographs

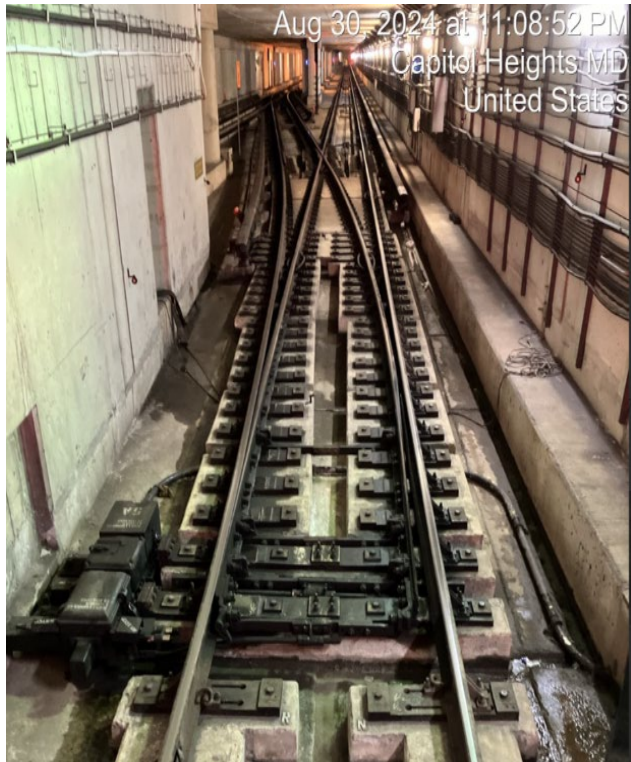
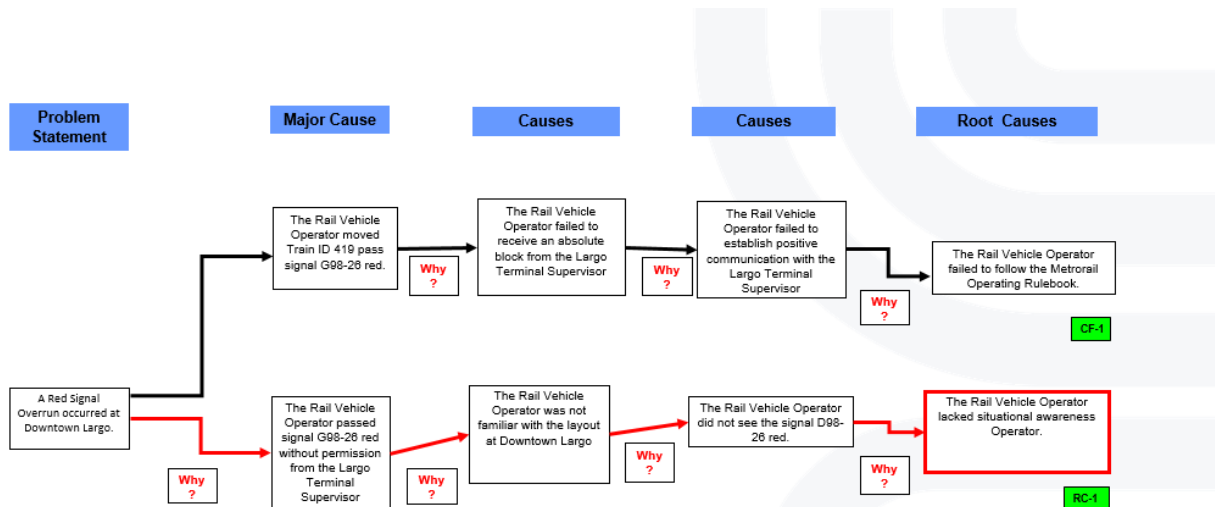


Image 9: Depicts switch 5A on track one and track 3 in the tail track at Downtown Largo Station.

Appendix E – Why-Tree Analysis



Root Cause Analysis

6 
E24687 – Red Signal Overrun – Downtown Largo



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

FINAL REPORT OF INVESTIGATION A&I E24770

Date of Event:	September 28, 2024
Type of Event:	0-8: Red Signal Overrun
Incident Time:	07:54 Hours
Location:	West Falls Church Yard; signal K99-302
Time and How received by SAFE:	08:13 Hours, Safety Information Official (SIO)
WMSC Notification Time:	08:54 Hours
Responding Safety Officers:	WMATA: Office of Safety Investigations (OSI) WMSC: None Other: None
Rail Vehicle:	Train ID 775 (L7166-67.7725-24.7614-15.7667-66T)
Injuries:	None
Damage:	None
Emergency Responders:	None
SUDS I/A Incident Number:	20240928#120207MX

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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West Falls Church Yard – Red Signal Overrun

September 28, 2024
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Abbreviations and Acronyms

AIMS	Advanced Information Management System
ARS	Audio Recording System
ATC	Automatic Train Control
ATCM	Automatic Train Control Maintenance
CCTV	Closed-Circuit Television
CMOR IIT	Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT)
COMR	Office of Radio Communications
IO	Interlocking Operator
Maximo	Maintenance and Material Management System
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
MPH	Miles Per Hour
NOAA	National Oceanic and Atmospheric Administration
OAP	Operations Administrative Policy
OM	Operations Manager
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
SAFE	Department of Safety
SIO	Safety Information Official
SUDS	Safety Universal Data System
VDMS	Vehicle Monitoring and Diagnostic System
WFC	West Falls Church
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

**Note that all times listed are approximate and may contain minor variations due to differences between systems of record. **

On September 28, 2024, at 07:54 hours, the Rail Vehicle Operator of Train ID 775 (L7166-67.7725-24.7614-15.7667-66T) reported a red signal overrun at signal K99-302 to the Interlocking Operator at West Falls Church Yard. The Interlocking Operator (IO) reported the event to the Metro Integrated Command and Communications Center Button Rail Traffic Controller (RTC).

The Audio Recording System (ARS) revealed that at 07:42 hours, the IO instructed Gap Operator #1 to board the train (Train ID 775) on track 1C as a gap train, prepare to depart from West Falls Church Yard, pick up Gap Operator #2 from the “Admin Roadway” and hold the train at that location. Gap Operator #1 acknowledged by repeating the instructions.

At 07:48 hours, Gap Operator #2 boarded the train, and then Gap Operator #1 began to move the train, passing signal K99-302, which was displaying a red aspect. The IO and Gap Operator #1 then conducted a ground walk-around inspection of Train ID 775.

After the Red Signal Overrun was identified, the IO notified the Button RTC, and Automatic Train Control (ATC) personnel were dispatched. The Office of Safety Investigations (OSI) was dispatched to West Falls Church Yard. During the inspection of the scene, ATC personnel reported that there was no damage to switches 303A/B.

There were no reported injuries as a result of this event.

In adherence to Standard Operating Procedure 102-01-02, which outlines the protocol for Removing an Employee from Service for involvement in an operational safety event, the Radio RTC dispatched a Rail Supervisor to relieve the Rail Vehicle Operator (Gap Operator #1) from duty for post-incident testing.

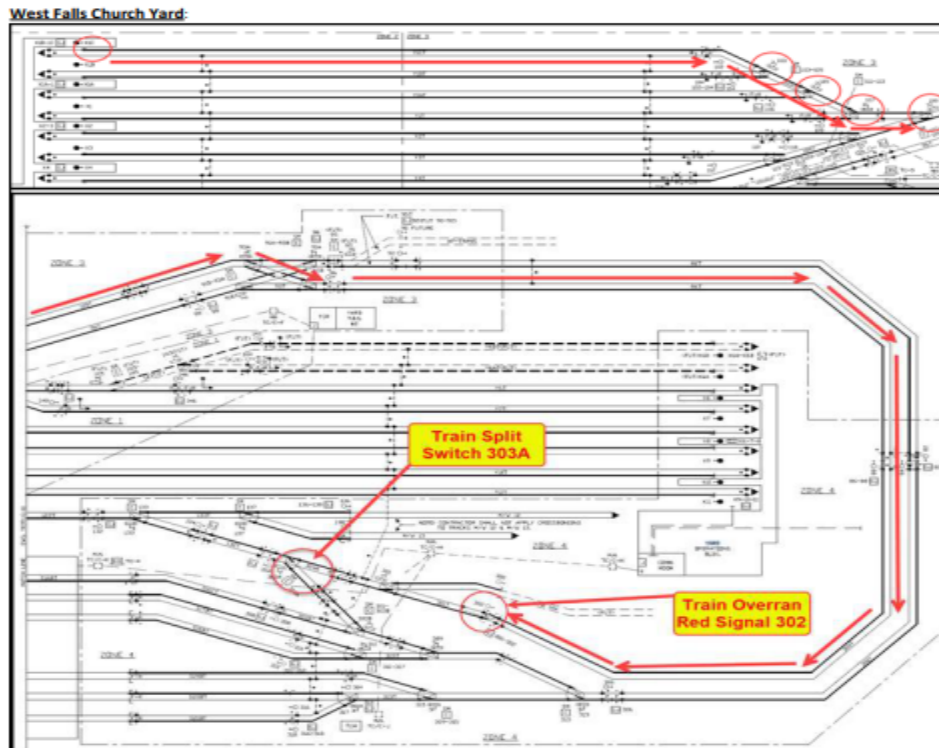
In accordance with the Office of the Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Operations Administrative Policy (OAP) 102.06, the Metro Integrated Command and Communications Center (MICC) promptly initiated the removal of Train ID 775 from revenue service for post-incident investigative measures. This action adhered to the Rail Vehicle Event Investigation Policy, ensuring a comprehensive examination of the incident.

The probable cause of the Red Signal Overrun event on September 28, 2024, at West Falls Church Yard was the Rail Vehicle Operator’s failure to follow instructions. A contributing factor was distraction when the second Rail Vehicle Operator boarded the train.

Incident Site

West Falls Church Yard – Signal K99-302

Field Sketch/Schematics



The above depiction is not to scale.

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

Upon receiving notification of the Red Signal Overrun at the West Falls Church Yard on September 28, 2024. SAFE dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The preliminary investigative methodologies included the following:

- Physical Site Assessment
- Formal Interviews – SAFE interviewed three (3) individuals as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individuals:

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- Interlocking Operator
 - Gap Operator #1
 - Gap Operator #2
- 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 – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
 - Gap Operator #1 Written Statement
 - Gap Operator #1 Training Records
 - Gap Operator #1 Certification Records
 - Gap Operator #1 30-Day work history review
 - Interlocking Operator Written Statement
 - Metrorail Operating Rulebook (MOR)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Metro integrated Command and Communications Center (MICC) Incident Report
 - Maximo Data
 - Safety Universal Data System (SUDS)
 - System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
 - ARS (Audio Recording System) playback [Radio and Landline Communications]
 - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Vehicle Monitoring and Diagnostic System (VMDS)
 - ATCE Oracle Report
 - Closed-circuit television (CCTV)
 - Office of System Maintenance, Office of Radio Communication (COMR)

Investigation

On Saturday, September 28, 2024, at 07:54 hours, Gap Operator #1, operating Train ID 775 (L7166-67.7725-24.7614-15.7667-66T) in West Falls Church Yard, passed signal K99-302, displaying a red aspect, traversing switches 303A/B.

Before the incident, Gap Operator #1 received radio instructions from the IO to conduct a ground pre-trip inspection of Train ID 775 (L7166-67.7725-24.7614-15.7667-66T), which was located on storage track 1C.

The Audio Recording System (ARS) playback revealed that at 07:42 hours, the IO granted Gap Operator #1, departing from storage 1C, an absolute block from signal K99-102 lunar to 302 red, and instructed Gap Operator #1 to pick up Gap Operator #2 and to hold at the “admin roadway”.



Image 1: Cab and Train camera shows Train ID 775 departing storage track 1C at 07:41 hours.

At 07:47 hours, closed-circuit television (CCTV) footage revealed Gap Operator #2 boarded lead car 7166 at the "admin roadway."



Image 2: Image of Gap Operator #2 boarding lead car 7166 at the "admin roadway" at 07:47:22 hours.



Image 3: The train began to move at 07:47:49 hours.

At 07:48 hours, the IO informed Gap Operator #1 that they had overrun signal K99-302 red and trailed switches 303A/B, instructing them not to move the train. The IO promptly reported the incident to the Button RTC, indicating they were going wayside to investigate.



Image 4: Shows Train 775 passed signal K99-302 red. Train ID 775 passed the signal by 430.2 feet.



Image 5: (left) Train ID 775 passed the switch by 94.8 feet. The red star indicates Lead Car 7166. (right) Shows switch 303A.

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At 07:54, the MICC's Operations Manager (OM) informed the Safety Information Official (SIO) about the incident.

At 08:04 hours, the IO instructed Gap Operator #1 to conduct a ground walk-around inspection. This action was confirmed after reviewing CCTV footage.

At 08:10 hours, the IO contacted Automatic Train Control Mechanic (ATCM) personnel via the radio and granted them permission to go wayside.

At 08:13 hours, the Maintenance Operations Center (MOC) contacted the Emergency Response Team (ERT) and instructed them to proceed to the wayside at West Falls Church Yard to inspect switch 303A. After the inspection was complete, the ERT reported a good track inspection, and switch 303A was in the normal position.

At 08:45 hours, the Safety Director On-Call (SDOC) instructed the IO not to move the train until SAFE personnel arrived on the scene.

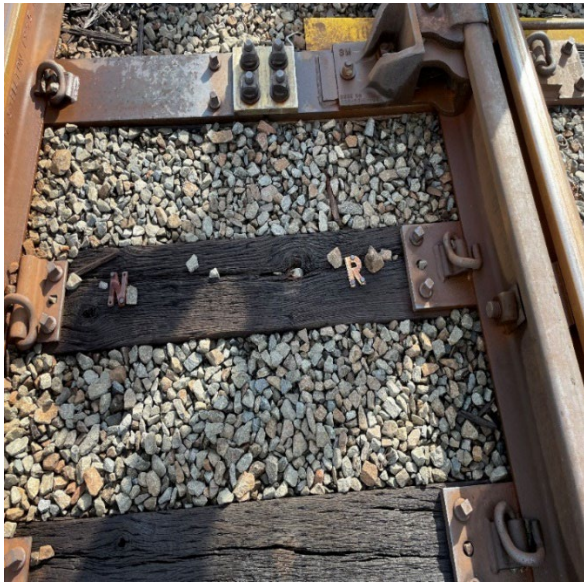


Image 6: Shows switch 303A in the normal position.

At 08:55 hours, the Office of Safety Investigations (OSI) arrived on the scene and requested permission from the IO to enter the roadway to conduct an inspection of the scene, document the incident, and inspect switch 303A/B alongside ATCM personnel. While documenting the scene, it was determined that Train ID 775 overran signal K99-302 red by 430.2 feet and switch 303A by 94.8 feet.

At 09:29 hours, OSI personnel informed the IO that the inspection of switches 303 A/B was complete, and ATCM reported no damage to the switches, deeming it safe to move Lead Car 7166 forward from signal K99-134. The Rail Vehicle Operator aboard Lead Car 7166 was instructed and given an absolute block by the IO from signal K99-134 red to signal K99-56 red.

At 09:54 hours, OSI advised the IO that they were clear of the wayside.

At 10:12 hours, the incident train was stored on track 11 in West Falls Church Yard for inspection.

The Incident Investigation Team (IIT) reported that Train ID 775 had no defects that could have contributed to the Red Signal Overrun.

Chronological Event Timeline

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

Time	Description
07:14:32 hours	<u>West Fall Church (WFC) Terminal Supervisor</u> : Instructed the IO to put the gap train at the WFC pocket track. <u>IO</u> : Advised they would move the gap train after the last train leaves. [Phone K99]
07:14:54 hours	<u>IO</u> : Contacted the Depot Clerk to inquire who the gap operators were. <u>Division Clerk</u> : Acknowledged. [Phone K99]
07:16:44 hours	<u>IO</u> : Instructed the Depot Clerk to have Gap Operator #1 call them via phone. <u>Division Clerk</u> : Acknowledged. [Phone K99]
07:18:13 hours	<u>IO</u> : Advised Gap Operator #1 that an 8-car consist was ready on 1C. <u>Gap Operator #1</u> : Acknowledged. [Phone K99]
07:24:42 hours	<u>Gap Operator #1</u> : Asked the IO if they contacted Gap Operator #2. <u>IO</u> : They have not talked to Gap Operator #2. <u>Gap Operator #1</u> : Stated they did not see Gap Operator #2 and instructed the IO to have Gap Operator #2 meet them at the “admin roadway” <u>IO</u> : Acknowledged. [Phone K99]
07:42:07 hours	<u>Gap Operator #1</u> : Advised that they were holding at K99-102 signal red in car 7166 with 8 cars showing on the console, and that they completed their checklist (pre-trip inspection). <u>IO</u> : Instructed Gap Operator #1 to verify their lunar at K99-102. Granted an absolute block to the roadway and to stand by. <u>Gap Operator #1</u> : Acknowledged. [Radio FC YD1]
07:42:37 hours	<u>IO</u> : Instructed the Division Clerk to have Gap Operator #2 meet the train at the roadway. <u>Division Clerk</u> : Acknowledged. [Phone K99]
07:42:57 hours	<u>IO</u> : Instructed Gap Operator #2 to meet Train ID 775 at the “admin roadway”. <u>Gap Operator #2</u> : Acknowledged. [Phone K99]
07:43:18 hours	<u>IO</u> : Instructed Gap Operator #1 to pick up Gap Operator #2 from the “admin roadway”. <u>Gap Operator #1</u> : Acknowledged. [Radio FC YD1]
07:47:22 hours	<u>Gap Operator #2</u> : Boarded the train. [CCTV]
07:47:49 hours	The train began to move. [CCTV]
07:48:46 hours	<u>IO</u> : Advised Gap Operator #1 that they overran signal K99-302 red and to hold the train. <u>Gap Operator #1</u> : Acknowledged. [Radio FC YD1]
07:52:09 hours	<u>IO</u> : The IO advised the Button RTC of the incident and that they were going to perform an inspection and a ground walkaround. <u>Button RTC</u> : Acknowledged. [Phone K99]
07:52:58 hours	<u>Button RTC</u> : Advised the AOM of the incident. <u>AOM</u> : Acknowledged. [Phone Button RTC]
07:54:01 hours	<u>Operations Manager (OM)</u> : Advised the SIO of the incident. <u>SIO</u> : Acknowledged. [Phone OM]
08:04:43 hours	<u>IO</u> : Instructed Gap Operator #1 to perform a ground walk-around. <u>Gap Operator #1</u> : Inaudible. [Radio FC YD1]

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Time	Description
08:06:02 hours	<u>Gap Operator #1</u> : Performed a ground walk-around. [CCTV]
08:08:00 hours	ATCM personnel arrived on the scene. [CCTV]
08:13:00 hours	ERT personnel arrived on the scene. [CCTV]
08:10:42 hours	<u>IO</u> : Contacted ATCM and granted them permission to go the wayside. <u>ATCM</u> : No response. [Radio FC YD1]
08:21:00 hours	<u>Senior Safety Investigator</u> : Notified and dispatched the on-duty Safety Investigator.
08:31:14 hours	<u>ERT</u> : Reported a good track inspection, and the switch was in the normal position to the MOC. <u>MOC</u> : Acknowledged. [Phone PDAS2]
08:38:12 hours	<u>IO</u> : Confirmed the Red Signal Overrun with SAFE personnel. <u>Senior Safety Investigator</u> : Acknowledged. [Phone K99]
08:45:16 hours	<u>SDOC</u> : Instructed the IO not to move the train until SAFE arrived. <u>IO</u> : Acknowledged. [Phone]
08:55:00 hours	<u>OSI</u> : Arrived on-scene. [CCTV]
09:11:49 hours	<u>OSI</u> : Requested permission to enter the roadway. <u>IO</u> : Granted permission to enter the roadway. [Radio FC YD1]
09:29:50 hours	<u>OSI</u> : Advised the IO that the inspection was complete. <u>IO</u> : Acknowledged. [Phone K99]
09:46:37 hours	<u>IO</u> : Granted Lead Car 7166 an absolute block from signal K99-134 to signal K99-56 red. [Radio FC YD1]
09:54:26 hours	<u>OSI</u> : Advised the IO clear of the roadway. <u>IO</u> : Acknowledged. [Radio FC YD1]
10:12:00 hours	The incident train was stored on track 11 in West Falls Church Yard. [MICC Report]

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

The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)

Adopted from CMOR IIT report with minor formatting and grammatical edits:

The Incident Investigation Team (IIT) performed a detailed analysis of the Red Signal Overrun incident at West Falls Church Yard. The EMM and VMDS Logs were reviewed, and there were no train defects found. Train ID 775 operated as designed.

Train ID 775 keyed up at the West Falls Church Yard bump post on September 28, 2024, at 07:40 hours. At 07:41 hours, the master controller was moved to P1-P4. At 07:41 hours, the master controller was moved to B1-B3, coast, and into P1-P4, and then was commanded to stop. At 07:41 hours, the master controller was moved to P1-P4. At 07:41 hours, the master controller entered the EM Deadman Handle position, and the train stopped at signal K99-102 red. At 07:41 hours, signal K99-102 red changed to a lunar aspect, and the master controller went to P1-P4. At 07:42 hours, the train approached switch 103. At 07:42 hours, the train passed switch 103. At 7:43 hours, the train passed switch 105. At 7:43 hours, the train passed switch 107. At 07:43 hours, the train passed switch 109. Switches 103, 105, 107, and 109 were all set in a straight thru move. At 07:47 hours, the train approaches signal K99-302 red and overruns the signal. At 07:48 hours, the master controller was moved to P1-P4. At 07:48 hours, the train approached switch 303A, which was set for a divergent move, and split the switch. At 07:49 hours, the EM Deadman Handle was applied. The Train came to a stop and keyed down.

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Train Events:

Train Time (ER - EMM)	NVR Time Screenshots (NVR Time is 33.566 seconds is ahead of ER Train Time)	Description Of Event	Train Speed MPH	Master Controller	Distance Train Traveled (FT) From Bump Post
09/28/2024 7:35:50 AM		The Train is at Bump Post 1C	0.0	B5	0.0
09/28/2024 7:40:18 AM	09/28/2024 07:40:52 AM (09/28/2024 07:40:18 AM)	Car 7166 Keys Up	0.0	B5	0.0
09/28/2024 7:41:00 AM		Master Controller Moved	0.0	B4	0.0
09/28/2024 7:41:00 AM		Master Controller Moved	0.0	B1~B3	0.0
09/28/2024 7:41:00 AM		Master Controller Moved	0.0	COAST	0.0
09/28/2024 7:41:03 AM	09/28/2024 7:41:36 AM (09/28/2024 7:41:03 AM)	Train Moves From Bump Post 1C	0.2	P1~P4	3.2
09/28/2024 7:41:05 AM		Master Controller Moved	1.4	COAST	6.3
09/28/2024 7:41:08 AM		Master Controller Moved	1.9	B1~B3	12.3
09/28/2024 7:41:11 AM		Train Stops	0.0	B4	16.3
09/28/2024 7:41:12 AM		Master Controller Moved	0.0	P1~P4	16.3
09/28/2024 7:41:20 AM		Master Controller Moved	4.4	Coast	41.8
09/28/2024 7:41:20 AM		Master Controller Moved	4.7	B4	43.2
09/28/2024 7:41:20 AM		Master Controller Moved	4.7	B5	43.7
09/28/2024 7:41:24 AM		Train Stops	0.0	B4	61.8
09/28/2024 7:41:24 AM		Master Controller Moved	0.0	B1~B3	61.8
09/28/2024 7:41:25 AM		Master Controller Moved	0.0	P1~P4	61.8
09/28/2024 7:41:30 AM		Master Controller Moved	2.8	COAST	72.2
09/28/2024 7:41:48 AM		MC Deadman Applied	1.8	B4	156.8
09/28/2024 7:41:48 AM		MC Deadman Released Train Stopped @ Red Signal 102 Train Stops	0.0	B4	157.1
09/28/2024 7:42:13 AM	09/29/2024 7:42:46 AM (09/29/2024 7:42:13 AM)	Signal 102 Changes to Luna Master Controller Moved Train Moves Past Signal	0.0	B4	157.1
09/28/2024 7:42:36 AM		Master Controller Moved	7.4	COAST	220.9
09/28/2024 7:42:37 AM		The Train approaches Switch 103 Master Controller Moved Switch Points Set Straight thru Move	8.0	P1~P4	238.3
09/28/2024 7:43:13 AM		Master Controller Moved	6.2	COAST	657.4
09/28/2024 7:43:15 AM		Master Controller Moved	5.9	P1~P4	674.0
09/28/2024 7:43:22 AM		Master Controller Moved The Train approaches Switch 105 Switch Points Set for Straight Thru Move	6.7	COAST	743.2
09/28/2024 7:43:26 AM		Master Controller Moved	6.2	B1~B3	777.7
09/28/2024 7:43:28 AM		Master Controller Moved	5.6	COAST	798.9
09/28/2024 7:43:30 AM		Master Controller Moved The Train approaches Switch 107 Switch Points Set Straight Thru Move	5.2	B1~B3	814.0
09/28/2024 7:43:34 AM		Master Controller Moved	4.0	COAST	842.5
09/28/2024 7:43:34 AM		Master Controller Moved The Train approaches Switch 109 Switch Points Set Straight Thru Move	3.8	P1~P4	842.8
09/28/2024 7:43:50 AM		Master Controller Moved	10.3	COAST	1008.8
09/28/2024 7:43:58 AM		Master Controller Moved	9.5	P1~P4	1119.5
SKIPPED RECORDS		<i>Master Controller Moved between P1~P4 & COAST Multiple Times</i>			
09/28/2024 7:47:59 AM	09/29/2024 7:48:30 AM (09/28/2024 7:47:59 AM)	The Train approaches Signal 302 Signal is RED Train Overruns Signal	10.7	COAST	2109.2
09/28/2024 7:48:02 AM		Master Controller Moved	9.9	P1~P4	3098.8
09/28/2024 7:48:14 AM		Master Controller Moved	9.9	B1~B3	3287.4
09/28/2024 7:48:17 AM	09/29/2024 7:48:50 AM (09/28/2024 7:48:17 AM)	The Train approaches Switch 303A Switch Points are Set for Divergent Move Train Split the Switch	9.9	B1~B3	3324.7
09/28/2024 7:49:10 AM		MC Deadman Applied Train Stops	0.0	B4	3469.0

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West Falls Church Yard:

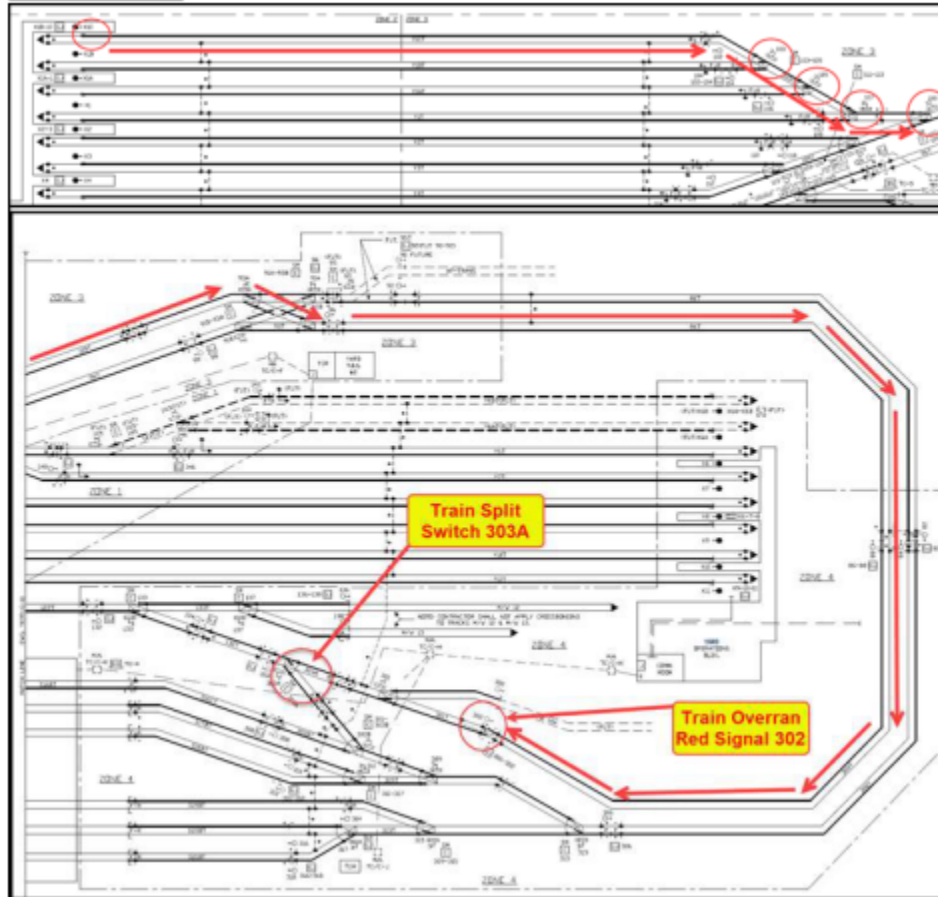


Chart 1: Shows a layout of West Falls Church Yard.

Office of Systems Maintenance, Office of Radio Communications (COMR)

The Office of Radio Communications conducted a test on track #11 at West Falls Church Yard, and all tests were reported to be loud and clear.

Office of Automatic Train Control Maintenance (ATCE)

Adopted from ATCM report with minor formatting and grammatical edits:

The yard lacks Train to Wayside Communication (TWC) systems, and the Rail Communication system at K99/West Falls Church Yard does not monitor assigned Train IDs or car identification numbers. Train ID 775 and lead car 7166 were used as identifiers for the incident train. The switch involved is a GRS Speed Frater model, which, like all WMATA yard switches, is designed to be safely trailed by trains without sustaining or causing damage.

Office of Rail Transportation (RTRA)

Adopted from RTRA report:

RTRA determined that Gap Operator #1 was in violation of passing the Red Signal at West Falls Church Yard. Due to the severity of their prior violations, they will be disqualified as a Rail Vehicle Operator for a minimum of 18 months and will return to the position of Bus Operator. They will be required to successfully demonstrate and complete all administrative and operational requirements for the position before returning to duty.

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Interview Findings and Written Statements

As part of the investigation launched into the event, SAFE interviewed three people. The interviews 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.

Interlocking Operator

- The IO stated that they advised Gap Operator #1 that they had an 8-car consist train on track 1C and perform a ground walk around. The IO stated they instructed Gap Operator #1 to pick up Gap Operator #2 at the “admin roadway.”
- The IO reported poor radio communications.
- The IO stated it was never communicated by Gap Operator #1 that Gap Operator #2 was aboard Train ID 775.
- The IO stated they were alerted to Train ID 775’s movement while monitoring the interlocking board and observed it passing the signal K99-302 red.
- The IO stated they instructed Gap Operator #1 to hold when they overran signal 99-302 red.
- The IO stated they notified ATC and the MICC of the Red Signal Overrun.
- The IO stated they secured the tower to investigate and perform a ground walk-around with Gap Operator #1.
- The IO stated that radio communication at the West Falls Church Yard is poor.
- The IO stated signal K99-302 is not visible from the “admin roadway.”
- The IO stated train ID 775 was the last train to leave West Falls Church Yard.
- The IO stated they usually set a completed lead to mainline for all trains, but Gap Operator #1 was instructed to pick up Gap Operator #2 and switch 32 was not visible from the “admin roadway”.
- The IO stated that Gap Operator #1 asked them not to report the incident.

Rail Vehicle Operator - Gap Operator #1

- Gap Operator #1 stated their assignment for the day was to move Train ID 775 to the West Falls Church Station pocket track with an additional gap operator.
- Gap Operator #1 stated they did not initially have their radio when the IO tried to reach them.
- Gap Operator #1 stated they utilized the stop-and-proceed method when they departed storage track 1C.
- Gap Operator #1 stated they instructed the IO to direct Gap Operator #2 to meet them at the “admin roadway”
- Gap Operator #1 stated they picked up Gap Operator #2 at the “admin roadway”.
- Gap Operator #1 stated Gap Operator #2 was not in the operator’s compartment at the time of the incident.
- Gap Operator #1 stated they never saw signal K99-302 red and were looking down at the console.
- Gap Operator #1 stated the operator’s door was open, and Gap Operator #2 was talking, which distracted them.
- Gap Operator #1 stated they did not hear the IO tell them to hold at the “admin roadway.”
- Gap Operator #1 stated signal K99-302 normally displays a lunar aspect when departing on the west side of the yard.
- Gap Operator #1 stated they recalled some instructions given by the IO.

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Final Report – Red Signal Overrun Rev. 1
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Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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- Gap Operator #1 stated they have no issues reporting incidents.

Rail Vehicle Operator - Gap Operator #2

- Gap Operator #2 stated they had no radio communications with the IO.
- Gap Operator #2 stated that when they're at West Falls Church Yard, they do not move trains from the west side of the yard.
- When asked about the Red Signal Overrun Gap Operator #2 stated that they did not recall the incident.
- Gap Operator #2 stated that they boarded Train ID 775 at the "admin roadway."
- Gap Operator #2 stated that Gap Operator #1 closed the operator's door when they boarded the train.
- Gap Operator #2 stated they had no conversation with Gap Operator #1 when the train began to move.

Weather

On September 28, 2024, at the time of the incident, NOAA recorded the temperature as 73°F, with fog, winds 7 MPH, and 94% humidity. West Falls Church Yard. The weather was not a contributing factor in this incident (Weather source: NOAA) – Falls Church, VA.

Related Rules and Procedures

Metrorail Operating Rulebook

1.2.1 Employees involved in, witnessing, or informed of an accident or incident, to include near misses, on the Metrorail system shall inform their supervisor, Metro Transit Police Department, Rail Operations Control Center and/or other appropriate authority as soon as possible, and shall file a written report.

3.1.3 Rail vehicles shall be allowed to move on red signals with permission from the Rail Traffic Controller and in accordance with respective Operating Modes without clamping switches provided the following conditions are met: a. The signal is not associated with pocket track or turnout switch, b. Verbal confirmation that the signal is lunar, and the switches are normal on the opposing track, and c. Rail 1, 2, or 3 has approved the move.

3.3 Signals Requiring a Stop Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

8.12 Rail Vehicle Operators stopped by a fixed signal, cab signal, loss of power, or unusual circumstances shall contact the Rail Traffic Controller or the Interlocking Operator immediately and be governed by their instructions.

12.4.3 Personnel shall not take any action until they are positive that all radio transmissions or receptions are heard, fully understood, and acknowledged. Individual radio transmissions shall, always, be repeated by the receiver so the transmitter can confirm the message was received completely and by the intended receiver.

Human Factors

Evidence of Fatigue

Interlocking Operator

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

Rail Vehicle Operator - Gap Operator #1

SAFE evaluated signs and symptoms of fatigue that may have been present at the time of the incident. No signs or symptoms of fatigue were detected from the available data. We reviewed the video of the incident for signs of Gap Operator #1's fatigue. No signs or symptoms of fatigue were evident from the video. The Gap Operator reported feeling fully alert at the time of the incident and experiencing no symptoms of fatigue in the time leading up to the incident.

Rail Vehicle Operator - Gap Operator #2

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

Fatigue Risk

Interlocking Operator

Safety evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident time of day did not suggest an increased risk of fatigue-related impairment. The employee reported some variation in the sleep schedule in the days leading up to the incident. The employee performed day and night work in the days leading up to the incident. The employee was awake for 4 hours and 40 minutes at the time of the incident. The employee reported a short sleep duration of less than 6 hours in the 24 hours leading up to the incident. This was less than the employee's usual workday sleep duration. The off-duty period preceding the incident was 10 hours long, which may impact the opportunity for sufficient sleep.

Rail Vehicle Operator - Gap Operator #1

Safety evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the day shift in the days leading up to the incident. The employee was awake for 4 hours and 30 minutes at the time of the incident. The employee reported 7 hours of sleep in the 24 hours preceding the incident. This was a comparable amount to the employee's usual workday sleep durations. The off-duty period was 48 hours, which provides an opportunity for 7-9 hours of sleep. The employee reported no issues with sleep.

Rail Vehicle Operator - Gap Operator #2

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

Post-Incident Toxicology Testing

Interlocking Operator

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

Rail Vehicle Operator - Gap Operator #1

WMATA's Drug and Alcohol Program determined that the Rail Vehicle Operator complied with and was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/6

Rail Vehicle Operator - Gap Operator #2

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

Findings

- At the time of the incident, radio communications were poor.
- The IO could not reach Gap Operator #2.
- Gap Operator #1 was given an absolute block from storage track 1C to the “admin roadway” to pick up Gap Operator #2.
- Gap Operator #1 did not repeat all instructions given by the IO.
- Train ID 775 had 2 gap operators aboard the train at the time of the incident.
- Train ID 775 overran signal K99-302 red and trailed switches 302A/B.
- The IO advised Gap Operator #1 that they overran the K99-302 signal red and instructed them to hold at their location.

Immediate Mitigation to Prevent Recurrence

- ATCM performed an inspection of switch 303A/B.
- ERT performed an inspection.
- SAFE was dispatched to the scene.
- Gap Operator #1 was removed from service by an RTRA Supervisor and transported for post-incident testing.

Probable Cause Statement

The probable cause of the Red Signal Overrun event on September 28, 2024, at West Falls Church Yard was the Rail Vehicle Operator's failure to follow instructions. A contributing factor was distraction when the second Rail Vehicle Operator boarded the train.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
120207_SAF ECAPS_RT RA_001	The Rail Vehicle Operator was disqualified as a train operator for 18 months and returned to their previous position as a Bus Operator.	RTRA	Completed

Incident Date: 09/28/2024 Time: 07:54 hours
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Appendices

Appendix A – Interview Summaries

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.

Interlocking Operator

The Interlocking Operator, a WMATA employee with 25 years of service and 10 years of experience in their current position, holds a valid Roadway Worker Protection (RWP) Level 4 certification that expires on 4/2025. Their prior experience as both a Rail Vehicle Operator and Bus Operator was noted, they stated that their sleep pattern alternated between day and night within the week leading to the incident, typically allowing 5.5 hours of sleep on workdays.

During the interview, the Interlocking Operator stated their shift was from 06:00 to 14:00 and noted that the last train to depart West Falls Church Yard on the day of the incident was Train ID 775, an 8-consist train. They mentioned that two Gap Operators were scheduled to move Train ID 775 to the West Falls Church station pocket track. Although the Interlocking Operator attempted to reach Gap Operator #2 via radio without success, they successfully communicated with Gap Operator #1, instructing them to conduct a ground walk around at storage track 1C, verify signal K99-102 with an absolute block, and hold at the “admin roadway,” pickup Gap Operator #2, and remain cognizant of signal K99-302; Gap Operator #1 confirmed the instructions.

The Interlocking Operator indicated that instructions were given to Gap Operator #1 to pick up Gap Operator #2 from the “admin roadway” but noted that Gap Operator #1 never repeated these instructions. Additionally, the Interlocking Operator stated that it was never communicated by Gap Operator #1 that Gap Operator #2 was aboard Train ID 775.

The Interlocking Operator reported that they were alerted to Train ID 775's movement while monitoring the interlocking board and observed it passing the signal K99-302 red. They immediately notified Gap Operator #1 of the red signal overrun and instructed them not to move the train.

The Interlocking Operator stated that ATC and the MICC were immediately notified. Following radio communication with Gap Operator #1, they secured the Tower, proceeded to investigate the incident, and conducted a ground walkaround with Gap Operator #1. During the investigation, it was revealed that switch 303A was trailed.

WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page ____ of ____

Incident Information: This page must be completed for all incidents

Date: 9/28/24 Incident Time: 8:00AM Time Reported: 8:00AM Reported by: Customer ☐ Employee ☐ ROCC ☐ Other ☒ SELF
Location
Station: N/A Mezzanine #: N/A Track #/Destination: N/A Chain Marker/Signal Number: N/A
TYPE OF INCIDENT
☐ Property Damage ☐ Smoke ☐ Fire ☐ Customer Complaint
☐ Customer Injury ☐ Customer Illness ☐ Employee Injury ☐ Employee Illness
☐ Criminal Activity ☐ Elevator Entrapment ☒ Rail Vehicle Incident ☐ Other (Explain in description of incident)

WEATHER **LIGHT CONDITIONS (natural lighting)** **LIGHTING (artificial lighting)**
Clear ☒ Rain ☐ Dawn/Dusk ☐ Daylight ☒ Lights On ☐ Lights Off ☐
Snow ☐ Sleet/Ice ☐ Dark ☐ Tunnel/Underground ☐ Lights Not Working ☐
STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC

Elevator/Escalator #: N/A AFC #: N/A Room Number/Location: N/A

Failure Number(s): N/A

Parking Lot ☐ Paid Area ☐ Free Area ☐ Garage ☐ Station Entrance ☐ Stairway # ____ ☐ Platform ☐ Ancillary Room ☐

Injury/Illness reported aboard Train ☐ Other ☐

Name of Responding Supervisor: N/A Name/Department of PLNT/AFC or other WMATA responder

TRAIN INCIDENTS

Train ID: 775 Destination: WFC Car Numbers (list all cars in consist): 71606 x 7705 x 71614 x 71607 Lead Car: 71606

Name of Responding Supervisor: [REDACTED] Name/Department of CMNT/TRST or other WMATA responder

SAFE [REDACTED] AND AFC [REDACTED]
DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.

Describe any property damage and the extent of any injuries.

At 7:40 am I informed [REDACTED] 8 cars verified on the console ground walk around complete verify a luner at Kilo 99 100 absolute block to the Adrien roadway and pick up operator [REDACTED]. Operator [REDACTED] never informed me that he was aboard the train. I looked at my board and the train was moving I said why are you moving stop the train you were not given any instructions. I notified ROCC signal 302 had an over run and switch 303 A/B was involved. Secured the tower after contacting AFC and went outside to investigate. Operator [REDACTED] and I both did a ground walk

Employee Completing Report

Employee Name (print): [REDACTED] Employee Signature (sign): [REDACTED] Date: 9/28/24
Division: West Falls Church Run #: [REDACTED] Block #: [REDACTED] Assigned Days: T/F
To Be Completed By Reviewing Manager

Supervisor Name (print): [REDACTED] Supervisor Signature: [REDACTED] Employee #: [REDACTED] Date: [REDACTED]

Action taken/needed

SMS Number:

50.753A 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors

Document 1: The Interlocking Operator WMATA/RTRA incident/accident written statement. Page 1 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
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Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 - 11/24/2024
Approved By: SAFE 707 - 12/05/2024

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WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page 2 of 2 **Additional Information- Complete this page for any incident where the information is available and when additional space is needed for incident description.****Customer Involved** ☐ **Employee Involved** ☒ **Witness** ☐

Last Name, First Name				Employee #
Date of Birth	Sex	Home Phone	Work Phone	Cell Phone
Home Address				Email Address
Nature of Injury/Illness <i>N/A</i>				
Assistance Offered: Accepted <input type="checkbox"/> Declined <input type="checkbox"/>				

If Transported:

Hospital:	Ambulance Number:	Arrival:	Departure:
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Customer Involved ☐ **Employee Involved** ☐ **Witness** ☐

Last Name, First Name				Employee #
Date of Birth	Sex	Home Phone	Work Phone	Cell Phone
Home Address				Email Address
Nature of Injury/Illness <i>N/A</i>				
Assistance Offered: Accepted <input type="checkbox"/> Declined <input type="checkbox"/>				

If Transported:

Hospital:	Ambulance Number:	Arrival:	Departure:
-----------	-------------------	----------	------------

Police/Fire/Other Agencies Involved

Jurisdiction/Arrival Time	Name	Badge/Unit Number
	<i>N/A</i>	
Jurisdiction/Arrival Time	Name	Badge/Unit Number
	<i>N/A</i>	

DESCRIBE THE INCIDENT (continued or witness statement): Include what you did to correct the problem and who you notified and when. Describe any property damage and the extent of any injuries.

Around the train to make sure there was not a derailment, ATC, arrived and safe [redacted] where both on the scene. [redacted] pointed [redacted] downtown, there was no change to the switches, the train was checked to move @ 9:45 AM, and the switches was back in service at 11:23 AM.

Employee Completing report

Empl [redacted]	Em [redacted]	Em [redacted]	Date: 9/28/24
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50.753B 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors

Document 2: The Interlocking Operator WMATA/RTRA incident/accident written statement. Page 2 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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Gap Operator #1

The Rail Vehicle Operator, a WMATA employee with 11 years of service and 10 years of experience in their current role, holds a current RWP Level 2 certification that expires on 4/2025. Their prior experience as a Bus Operator was noted. They stated their sleep pattern did not change within the week leading to the incident, and they typically allowed 6 hours of sleep on workdays.

During the interview, Gap Operator #1 reported that their shift began at 05:28 and was subsequently removed from service at 08:15 for post-incident testing. Gap Operator #1 stated that prior to the incident, they were assigned as Gap Operator #1, and their assignment for the day was to move Train ID 775 from storage track 1C to the West Falls Church Station pocket track along with an additional gap operator. Gap Operator #1 stated that the gap trains are moved after the last revenue train or if requested by the MICC.

Gap Operator #1 stated they instructed the IO to direct Gap Operator #2 to meet Train ID 775 at the “admin roadway.” When Gap Operator #2 boarded the train through the bulkhead door, the door was secured, and they began to move the train.

Gap Operator #1 stated that while Train ID 775 was in motion, the door to the operator’s compartment was open, and Gap Operator #2 was talking, which caused a distraction.

Gap Operator #1 stated that the Interlocking Operator advised via radio that Train ID 775 overran signal K99-302 red and to hold the train. Gap Operator #1 stated that they advised the train was holding at K99-134 red.

When asked about radio communication, Gap Operator #1 stated that it’s systematically bad throughout the West Fall Church Yard. Also, when asked, Gap Operator #1 stated that they were looking down at their console after Gap Operator #2 boarded and the train began to move and were not aware of signal K99-302 red.

WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page ____ of ____

Incident Information: This page must be completed for all incidents

 Date: 09/28/24 Incident Time: 7:45 Time Reported: _____ Reported by: Customer ☐ Employee ☒
 ROCC ☐ Other ☐
Location
 Station: Yard Mezzanine #: _____ Track #/Destination: _____ Chain Marker/Signal Number: _____

TYPE OF INCIDENT

<input type="checkbox"/> Property Damage	<input type="checkbox"/> Smoke	<input type="checkbox"/> Fire	<input type="checkbox"/> Customer Complaint
<input type="checkbox"/> Customer injury	<input type="checkbox"/> Customer Illness	<input type="checkbox"/> Employee Injury	<input type="checkbox"/> Employee Illness
<input type="checkbox"/> Criminal Activity	<input type="checkbox"/> Elevator Entrapment	<input checked="" type="checkbox"/> Rail Vehicle Incident	<input type="checkbox"/> Other (Explain in description of incident)

WEATHER Clear ☐ Rain ☒ Snow ☐ Sleet/Ice ☐
LIGHT CONDITIONS (natural lighting) Dawn/Dusk ☐ Daylight ☒ Dark ☐ Tunnel/Underground ☐
LIGHTING (artificial lighting) Lights On ☐ Lights Off ☐ Lights Not Working ☐
STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC

Elevator/Escalator #: _____ AFC #: _____ Room Number/Location: _____

Failure Number(s): _____

 Parking Lot ☐ Paid Area ☐ Free Area ☐ Garage ☐ Station Entrance ☐ Stairway # _____ Platform ☐ Ancillary Room ☐

 Injury/Illness reported aboard Train ☐ Other ☐

Name of Responding Supervisor: _____ Name/Department of PLNT/AFC or other WMATA responder: _____

TRAIN INCIDENTS

 Train ID: 775 Destination: WF Rocket Car Numbers (list all cars in consist): _____ Lead Car: 7166

Name of Responding Supervisor: _____ Name/Department of CMNT/TRST or other WMATA responder: _____

DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.

Describe any property damage and the extent of any injuries.

I was instructed by the interlocking operator to take 8 cars from track 1C and proceed to the admin roadway and pick up operator [redacted] who was the other Gap operator. Prior to those instructions I asked the interlocking operator if she could contact the other gap operator to meet me at the roadway. Once I reached the signal and she gave me the block to the roadway I picked up the other gap operator and proceeded until I reached K99134 red and I contacted the tower at that time. She said she asked me to hold.

Employee Completing Report

 Employee Signature (sign): _____ Employee #: _____ Date: _____
 Division: West Falls Run #: _____ Block #: _____ Assigned Days: 1/16
To Be Completed By Reviewing Manager

 Supervisor Name (print): _____ S: _____ Employee #: _____ Date: 9-30-2024
 Action taken/needed: _____

SMS Number:

20240928#120227 MW

50.753A 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors

Document 3: Gap Operator #2 WMATA/RTRA incident/accident written statement.

 Incident Date: 09/28/2024 Time: 07:54 hours
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 Drafted By: SAFE 770 - 10/17/2024
 Reviewed By: SAFE 702 - 11/24/2024
 Approved By: SAFE 707 - 12/05/2024

Gap Operator #2

The Rail Vehicle Operator, a WMATA employee with 8 years of service and 2 years of experience in their current role, holds a current RWP Level 2 certification that expires on 10/2024. Their prior experience as a Bus Operator was noted.

During the interview, Gap Operator #2 reported that their shift began at 06:00. Their assignment for the day was to stage at West Falls Church Station, with an additional gap operator. Gap Operator #1 stated that the gap trains are moved after the last revenue train or if requested by the MICC.

When asked about the Red Signal Overrun at the West Falls Church Yard, Gap Operator #2 stated that they did not recall the incident.

Gap Operator #2 stated that when they boarded Train ID 775 at the "admin roadway," Gap Operator #1 closed and secured the operator compartment door before the train started moving.

Appendix B – Certifications

RTRA 903-12-00 Approved: 04/02/2024.



Examiner Checklist

Train Operator Certification Quality Control

		Information
Employee ID		[REDACTED]
Employee Name		[REDACTED]
Date of Exam		4-22-24
Attempt Number		2
Examiner Name		[REDACTED]
Yes	NA	Page 1
<input checked="" type="checkbox"/>		All Employee-related are filled out.
<input checked="" type="checkbox"/>		All Exam Administered fields are filled out according to the Employee's position.
<input checked="" type="checkbox"/>		All applicable Exam Administered fields have an attempt number.
<input checked="" type="checkbox"/>		All applicable Exam Administered fields have a passing score.
<input checked="" type="checkbox"/>		Safety Vest, Footwear, and Identification are marked Yes.
<input checked="" type="checkbox"/>		All words and numbers can be read by another person.
<input checked="" type="checkbox"/>		Signatures and dates are filled out for both Employee and Examiner.
		Page 2, Subcategories 1 – 19
<input checked="" type="checkbox"/>		Employee Number and Date are complete and match the front page.
<input checked="" type="checkbox"/>		Cars Used is filled out.
<input checked="" type="checkbox"/>		Each subcategory tested has a QL score.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any subcategory not tested is crossed out and score is labeled N/A.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	At least 4 discrepancies are listed in Preparation for Service.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Locations are recorded for applicable subcategories.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Car numbers are recorded for applicable subcategories.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Times are exact and not rounded.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The QL score for each Task Subcategory is under the time allowed.
<input checked="" type="checkbox"/>		All words and numbers can be read by another person.
		Page 2, Troubleshooting (Subcategory 20)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Troubleshooting scenarios include one problem from Group A and one from Group B.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lead/Belly and Reset/No Reset are written for the applicable problems.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Times are exact and not rounded.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The QL Score for each Troubleshooting scenario is under the time allowed.
<input checked="" type="checkbox"/>		All words and numbers can be read by another person.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Supervisors and Training Instructor have a third troubleshooting problem from either group.
		Scoring & Retest
<input checked="" type="checkbox"/>		The task category scores accurately reflect the subcategory scores.
<input checked="" type="checkbox"/>		The overall grade on Page 1 matches the combined scores on Page 2.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	The correct sections that need to be retested are listed on Page 1 in the Comment section.

I attest that the associated Job Task Proficiency Form has been checked and that all information is correct.

Signature: [REDACTED]

Date: 4-22-24

Document 4: Train Operation Certification for Gap Operator #1. (Redacted)

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Reviewed By: SAFE 702 – 11/24/2024
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TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name:	[REDACTED]	Emp.No:	[REDACTED]	Division:	West Falls Church	Date:	April 22, 2024
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Reason for Certification: *Please place a check in an area below.*

☐ Certification: Student ☐ Pre-certification: Student ☐ Division Request ☒ Re-Certification ☐ Return to Duty ☐ Other _____

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MOR attempt #1	78 %	March 29, 2024	MOR	x	
TVOIM/TOIM attempt #1	75 %	March 29, 2024	Perm/Temp/Special Orders	x	
Supervisor Combination attempt #	%	N/A	Troubleshooting Guide	x	
Practical attempt #2	QL- PASS	April 22, 2024	Flashlight	x	
			Safety Vest	x	
			Footwear	x	
			Identification (One Badge, RWP)	x	

Comments:

RWP Feb 25

Signatures:	Date:
Employee: [REDACTED]	April 22, 2024
Examiner: [REDACTED]	April 22, 2024

RTRA-906-01-00

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 1

Document 5: Train Operation Certification for Gap Operator #1. Page 1 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
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TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION (continuation sheet)

Emp No.: [REDACTED]

Date: April 22, 2024

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3) – ALL TIMES (are in minutes)
I. Preparation for Service	QL-1	Cars Used: 7678-7511
1. Exterior Inspection	1	7678 BCO c/o 7679 Rotary Drum Switch c/o 7678 Barrier Loose
2. Interior Inspection - Trailing Cab	1	7510 P/A c/b tripped
3. Interior Inspection - Each Car	1	7511 Door valance hanging 7679 EV c/b tripped
4. Interior Inspection – Oper. Cab	1	7678 Horn c/o
5. Rolling Test / Rolling Brake Test	1	Track 6
		Time Allotted: 35:00 / Actual Time: 32:20
II. Mainline Operation	QL-1	
6. Communications	1	OPS 3
7. Door Oper. & Station Stopping	1	E09 track 1
8. Use of Horn	1	E10 to E08 tracks 1 & 2
9. Speed Adherence/Manual Oper.	1	E10 to E08 tracks 1 & 2
10. Turn Back Moves	1	Location: E08 06 Time Allotted: 02:00 / Actual Time: 1:27
11. Manual Route Selection	1	Location: E10 08
12. EV Shutoff	1	Time Allotted: 00:30 (01:00) / Actual Time: :07 car #7519
III. Yard Operation	QL-1	
13. Communications	1	E99 Tower
14. Yard Movements	1	Track 6
15. Coupling	1	Time Allotted: 08:00 (12:00) / Actual Time: 5:38 Cars Used: 7519+7387 +
16. Uncoupling	1	Time Allotted: 05:00 (07:30) / Actual Time: 4:55 Cars Used: <7386-7510 >
17. Isolation (Self-Recovery)	1	Time Allotted: 15:00 (22:30) / Actual Time: 13:27 Cars Used: 7678-7511-7386-7519
18. Manual Switch Operation	1	Switch 201 Greenbelt yard
IV. Miscellaneous	QL-2	
19. Recovery Train Operation	1	Time Allotted: 12:00 (18:00) / Actual Time: 9:44 Cars Used: 7678-7511-7386-7519 +
20. Troubleshooting	2	Car Numbers 7678-7511-7386-7519
Problem 1: No Brakes off belly car #7519 no reset QL-2 Actual time: 7:32 Exceeded QL-1 time by 1:32		
Problem 2: BIE belly car #7510 Mushroom depressed no reset QL-1 Actual time: 3:22		

Document 6: Train Operation Certification for Gap Operator #1. Page 2 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
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Drafted By: SAFE 770 - 10/17/2024
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RTRA Auto Doors Job Task Proficiency Evaluation

Name: [REDACTED] Emp. No: [REDACTED] Date: 5/22/24 Start Time: 8:52A End Time: 9:06A

Division: WE Train ID#: 945 Lead Car#: 7580 No of Cars: 6 Cert Attempt #: 1

OCC Contacted prior to breaking seal?

☒ Y ☐ N

Auto Doors CBT completed prior to cert?

☒ Y ☐ N

Line: Orange Track #: 1

No.	Station Stops	1. Verifies TWC TX and TWC RX lights are alternately flashing mid platform. (On ADU for TX)	2. At 3mph-5mph depresses the TRAIN BERTH Button.	3. Verifies TB (Train Berth) is illuminated on the ADU.	4. Verifies BEC is illuminated on the Console.	5. On platform side, opens window/places head out/verifies train is on platform.	6. If doors don't open, verifies position, makes announcement sounds horn & repeats steps 2-5.	7. Speed commands (dwell time ends) roadway ahead clear/customer flow subbed if follows manual door closing procedure (SOP #40).	8. If doors fail to open again/Reports in ROCC/Follows manual door closing procedure (SOP #40).	Remarks
EX	A15		X		X				X	Only noncompliant observations are marked with an "X".
1	K03									
2	K02									
3	K01									
4	C05									
5	C04									
6	C03									
Additional station stops listed below, if deemed necessary by Examiner.										
7										
8										
9										

Verified w/ Operator Door Mode resealed in Manual/Manual?

☒ Y ☐ N

OCC Contacted to report Door Mode resealed in Manual/Manual?

☒ Y ☐ N

Use PSPM: Train Operations task proficiency standards category: STATION STOPPING AND DOOR OPERATION

Auto Doors Practical Score:

QL-

Employee Signature

Date

Examiner Signature

Date

Updated: 09/12/2023, RTRA QA/QC Group - RTRA-906-03-00

Document 7: Auto Doors Job Task Proficiency Evaluation for Gap Operator #1. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name:	[REDACTED]	Emp.No:	[REDACTED]	Division:	West Falls Church	Date:	03/29/2024
-------	------------	---------	------------	-----------	-------------------	-------	------------

Reason for Certification: *Please place a check in an area below.*

Certification: Student ☐ Pre-certification: Student ☐ Division Request ☐ Re-Certification ☒ Return to Duty ☐ Other _____

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MOR version #:	78 %	03-29-2024	MOR	✓	
TVOIM/TOIM	75 %	03-29-2024	Perm/Temp/Special Orders	✓	
Supervisor Combination	%	N/A	Troubleshooting Guide	✓	
Practical attempt #:1st	QL- 3	03-29-2024	Flashlight	✓	
			Safety Vest	✓	
			Footwear	✓	
			Identification (One Badge, RWP)	✓	

Comments

Operator [REDACTED] Self Recovery exercise was ended at 8:44, she had difficult climbing in the #9 door on car 7444. She also attempted to enter car #7165 and was unable to enter the train through that #9 door.

Operator [REDACTED] received less than a QL 1 in 6 or more categories and will need to take the enter practical certification over.

See certification results.

Signatures:	Date:
Employee: [REDACTED]	03/29/24
Examiner: [REDACTED]	3/29/2024

Document 8: Train Operation Certification for Gap Operator #1. Page 1 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3)
I. Preparation for Service	QL 3	Cars Used: 7444 7445 7623 7622
1. Exterior Inspection	3	(7444) Barrier (7445) BCCO (7623) Rotary Drum (Failed to secure barriers on trailing car. Failed to normal up Rotary Drum(7623)/Pulled Rotary Drum down where it was normal (7445)
2. Interior Inspection - Trailing Cab	3	(7444) Horn C/O (Failed to normal the horn)
3. Interior Inspection - Each Car	3	(7623) Door Valance (Missed hanging valance. Failed to inspect cars 7445 & 7623)
4. Interior Inspection - Oper. Cab	1	(7622) Tail Marker Lights C/B (Failed to perform door operation on operating car)
5. Rolling Test / Rolling Brake Test	3	(7622) Track 22 (Unable to get a brakes off to perform a rolling & rolling brake test)
		Time Allotted: 35:00/Actual Time: 22:47
II. Mainline Operation	QL 1	
6. Communications	1	
7. Door Oper. & Station Stopping	1	
8. Use of Horn	1	
9. Speed Adherence/Manual Oper.	1	
10. Turn Back Moves	1	Location: Franconia Spg Time Allotted: 02:00 /Actual Time 1:48
11. Manual Route Selection	1	Location: J01 16
12. EV Shutoff	1	Time Allotted: 00:30 (1:00) /Actual Time: 00:04 seconds
III. Yard Operation	QL 3	
13. Communications	1	
14. Yard Movements	1	
15. Coupling	1	Time Allotted: 08:00 (12)/Actual Time: 7:03 Cars Used: 7289+7165
16. Uncoupling	2	Time Allotted: 05:00 (7.5)/Actual Time: 4:58 Cars Used: 7164-7444 (Failed to stepover to stored unit to perform steps)
17. Isolation (Self-Recovery)	Inc	Time Allotted: 15:00 (22.5)/Actual Time: 8:44 Cars Used: 7164/7444 (Operator was unable to board the train's #9 door (7444)
18. Manual Switch Operation	3	(C99) 165 (Operator was unsure of where to place clamp & failed to attempt to clamp the switch)
IV. Miscellaneous	QL 3	
19. Recovery Train Operation	1	Time Allotted: 12:00 (18)/Actual Time:11:52 Cars Used:7622 7623 7445 7444+7164 71657289 7288
20. Troubleshooting	2	7289 Passenger Door Open (Belly) 3:44 (Went straight to the trouble screen w/out following steps to recycling doors)
	3	7164 ATC Power Supply (Belly) Reset 8:41 (Opened doors on the platform side, left the doors open while going back to car
#7444, Stated [REDACTED] was unsure of what problem [REDACTED] was troubleshooting before finding ATC Power Supply tripped. Exceeded regulated time).		
RTRA-906-01-00 TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION Page 2		

Document 9: Train Operation Certification for Gap Operator #1. Page 2 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name: [Redacted] Emp. No. [Redacted] Division: West PALW Date: June 16, 2022

Reason for Certification: *Please place a check in an area below.* Training Time Received: *Please record training time in an area below.*

☐ Certification: Student ☐ Pre-certification: Student ☐ Division Request
☒ Re-Certification ☐ Return to Duty ☐ Other _____

Rail Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____
Division _____
Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____
NOTE: OJT time is not separate from Weeks/Days/Hours.

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MSRPH version #:	83 %	6/16/22	MSRPH	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TVOIM/TOIM	75 %	6/16/22	Perm/Temp/Special Orders	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Supervisor Combination	%		Troubleshooting Guide	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Practical attempt #: 18	QL- 1	6/16/22	Flashlight	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Safety Vest	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Footwear	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Identification (One Badge, RWP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Corrective Actions Required	Date Due	Complete	Initials
<u>Submitted for printing</u>			
Forwarded to:	Date:		

Certification Information: *To be completed by QA/QC Staff*

Emp. No: [Redacted] Date of Birth: 9/4/67
Date Last Qualified: _____ Certification Class: _____
Due Date Next Qualification: _____ Corrective Lenses: no
Date Qualification Expires: _____ Restrictions: _____

Signatures: [Redacted] Date: 6/16/22
Reviewed by: [Redacted]

Document 10: Train Operation Certification for Gap Operator #1. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024



TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name: [REDACTED]	Emp. No: [REDACTED]	Division: WEST FALLS	Date: 9.7.22
------------------	---------------------	----------------------	--------------

Reason for Certification: <i>Please place a check in an area below.</i>	Training Time Received: <i>Please record training time in an area below.</i>
<input type="checkbox"/> Certification: Student <input type="checkbox"/> Pre-certification: Student <input type="checkbox"/> Division Request	Rail Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____
<input checked="" type="checkbox"/> Re-Certification <input type="checkbox"/> Return to Duty <input type="checkbox"/> Other _____	Division Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____
	NOTE: OJT time is not separate from Weeks/Days/Hours.

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MSRPH version #:	N/A %	N/A	MSRPH	✓	
TVOIM/TOIM	87 %	9.7.22	Perm/Temp/Special Orders	✓	
Supervisor Combination	N/A %	N/A	Troubleshooting Guide	✓	
Practical attempt #:	QL- N/A	N/A	Flashlight	✓	
			Safety Vest	✓	
			Footwear	✓	
			Identification (One Badge, RWP)	✓	

Corrective Actions Required	Date Due	Complete	Initials
Forwarded to:		Date:	

Certification Information: <i>To be completed by QA/QC Staff</i>		Signatures:	Date:
[REDACTED]	Date of Birth: 9-5-67	[REDACTED]	09/7/22
Date Last Qualified: 9.7.22	Certification Class: A	[REDACTED]	9.7.22
Due Date Next Qualification:	Corrective Lenses: NO	Reviewed by:	
Date Qualification Expires:	Restrictions:		

Document 11: Train Operation Certification for Gap Operator #1. Page 1 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION (continuation sheet)

Emp No. [REDACTED]

Date: 9.7.22

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3) - ALL TIMES (are in minutes)
I. Preparation for Service	N/A	Cars Used:
1. Exterior Inspection	N/A	
2. Interior Inspection - Trailing Cab	N/A	
3. Interior Inspection - Each Car	N/A	
4. Interior Inspection - Oper. Cab	N/A	
5. Rolling Test / Rolling Brake Test	N/A	
	N/A	Time Allotted: 35:00 / Actual Time: :
II. Mainline Operation	N/A	
6. Communications	N/A	
7. Door Oper. & Station Stopping	N/A	
8. Use of Horn	N/A	
9. Speed Adherence/Manual Oper.	N/A	
10. Turn Back Moves	N/A	Location: Time Allotted: 02:00 / Actual Time: :
11. Manual Route Selection	N/A	Location:
12. EV Shutoff	N/A	Time Allotted: 00:30 (01:00) / Actual Time: :
III. Yard Operation	N/A	
13. Communications	N/A	
14. Yard Movements	N/A	
15. Coupling	N/A	Time Allotted: 08:00 (12:00) / Actual Time: : Cars Used: +
16. Uncoupling	N/A	Time Allotted: 05:00 (07:30) / Actual Time: : Cars Used: < >
17. Isolation (Self-Recovery)	N/A	Time Allotted: 15:00 (22:30) / Actual Time: : Cars Used:
18. Manual Switch Operation	N/A	
IV. Miscellaneous	N/A	
19. Recovery Train Operation	N/A	Time Allotted: 12:00 (18:00) / Actual Time: : Cars Used: +
20. Troubleshooting	N/A	

Rev. June 5, 2020 - RTRA DA/DC

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Page 2

Document 12: Train Operation Certification for Gap Operator #1. Page 2 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION



Name: [REDACTED]	Emp.No: [REDACTED]	Division: West Falls Church	Date: 9-2-22
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Reason for Certification: Please place a check in an area below.	Training Time Received: Please record training time in an area below.
<input type="checkbox"/> Certification: Student <input type="checkbox"/> Pre-certification: Student <input type="checkbox"/> Division Request	Rail Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____
<input type="checkbox"/> Re-Certification <input type="checkbox"/> Return to Duty <input checked="" type="checkbox"/> Other <i>EXAM ONLY</i>	Division: _____ Training: Weeks: _____ Days: _____ Hours: _____ OJT: _____
NOTE: OJT time is not separate from Weeks/Days/Hours.	

Exam Administered	Score	Date Taken	Equipment (current/working condition)	Yes	No
MSRPH version #:	%		MSRPH		
TVOIM/TOIM <i>2nd Attempt</i>	<i>66</i> %	<i>9-2-22</i>	Perm/Temp/Special Orders		
Supervisor Combination	%		Troubleshooting Guide		
Practical attempt #:	QL-		Flashlight	<input checked="" type="checkbox"/>	
			Safety Vest	<input checked="" type="checkbox"/>	
			Footwear	<input checked="" type="checkbox"/>	
			Identification (One Badge, RWP)	<input checked="" type="checkbox"/>	

Corrective Actions Required	Date Due	Complete	Initials
<i>Must retake 3rd attempt TVOIM written exam.</i>			
Forwarded to:	Date:		

Certification Information: To be completed by QA/QC Staff		Signatures:	Date:
Emp. No: [REDACTED]	Date of Birth:	[REDACTED]	<i>9/2/22</i> <i>9-2-22</i>
Date Last Qualified:	Certification Class:		
Due Date Next Qualification:	Corrective Lenses: <i>NO</i>		
Date Qualification Expires:	Restrictions:		
		Reviewed by: <i>[Signature]</i>	

Document 13: Train Operation Certification for Gap Operator #1. Page 1 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (Remarks are required for a quality level score of 2 or 3) – ALL TIMES (are in minutes)
I. Preparation for Service		
1. Exterior Inspection		Cars Used:
2. Interior Inspection - Trailing Cab		
3. Interior Inspection - Each Car		
4. Interior Inspection – Oper. Cab		
5. Rolling Test / Rolling Brake Test		
		Time Allotted: 35:00 / Actual Time: :
II. Mainline Operation		
6. Communications		
7. Door Oper. & Station Stopping		
8. Use of Horn		
9. Speed Adherence/Manual Oper.		
10. Turn Back Moves		Location: Time Allotted: 02:00 / Actual Time: :
11. Manual Route Selection		Location:
12. EV Shutoff		Time Allotted: 00:30 (01:00) / Actual Time: :
III. Yard Operation		
13. Communications		
14. Yard Movements		
15. Coupling		Time Allotted: 08:00 (12:00) / Actual Time: : Cars Used: +
16. Uncoupling		Time Allotted: 05:00 (07:30) / Actual Time: : Cars Used: < >
17. Isolation (Self-Recovery)		Time Allotted: 15:00 (22:30) / Actual Time: : Cars Used:
18. Manual Switch Operation		
IV. Miscellaneous		
19. Recovery Train Operation		Time Allotted: 12:00 (18:00) / Actual Time: : Cars Used: +
20. Troubleshooting		


Document 14: Train Operation Certification for Gap Operator #1. Page 2 of 2. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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Appendix C – ATCE Investigations Report

	Washington Metropolitan Area Transit Authority
	INVESTIGATION REPORT FORM: INFR-COSI-ATCE-IR-24-0017-K99

SIGNAL ENGINEERING INVESTIGATION REPORT

REQUEST NUMBER: IR-24-0017-K99

REQUESTER: [REDACTED]

DATE: 2024-Oct-01

BY: [REDACTED]
COSI – SIGNAL ENGINEERING

Approved
Approved: 10/04/2024


IR-24-0017-K99 – Red Signal Overrun, Signal 302
Page 1 of 6
INFR-COSI-ATCE-IR-24-0017-K99 Incident Analysis Report-10042024

Document 15: ATCE Oracle Report. Page 1 of 6. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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	Washington Metropolitan Area Transit Authority	
	INVESTIGATION REPORT	FORM: INFR-COSI-ATCE-IR-24-0017-K99

Incident Title: Signal 302 Overrun (RED)
 Incident Date/Time: 2024-Sep-28 07.38 Hrs
 Incident Location: K99/West Falls Church Yard

EXECUTIVE SUMMARY:

See attachments:

- Book of Plans pages YK99-G-11 and 12
- RailComm Graphical Playback (2024-Sep-28 07.30.00 to 07.40.00)

The Yard does not contain Train to Wayside Communication systems (TWC) and the RailComm system used at K99/West Falls Church Yard does not track assigned Train IDs or car identification numbers. For the purposes of this summary, the Train ID of 775 and lead car of 7166 were reported as the incident train identifiers.

As of 07.30.00 Hours on Saturday the 28th of September 2024, the incident train was stored on Track Y1C of K99.

As of 07.30.00, Signal 302 was in a stop (RED) condition and was not selected for routing or commanded to be clear (LUNAR) during the incident time period.

At 07.32.32, the train was given a route from Signal 102 at storage track Y1C through Signal 88 on the inner portion of the loop around the east end of the yard.

Signal 302 remained in a stop (RED) condition the entire time.

At 07.38.28, the incident train traveled past Signal 302 in its stop (RED) state.

At 07.38.42, the incident train traveled over Switch 301 in the NORMAL position. This was a trailing move, however, because the switch was in the NORMAL position, the switch was unaffected.

At 07.38.51, the incident train traveled over Switch 303A in the REVERSE position. This was a trailing move, and because the switch was in the REVERSE position, the switch was trailed.

At 07.38.54, the incident train has gone beyond switch 303A and shunts track circuit 132T where it stops moving.

This switch is a GRS SpeedFrater model, and like all WMATA’s yard switches, is designed to be trailed without taking damage or causing damage to the train.

Approved
 Approved: 10/04/2024

IR-24-0017-K99 – Red Signal Overrun, Signal 302
 Page 2 of 6
 INFR-COSI-ATCE-IR-24-0017-K99 Incident Analysis Report-10042024

Document 16: ATCE Oracle Report. Page 2 of 6. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
 Final Report – Red Signal Overrun Rev. 1
 E24770

Drafted By: SAFE 770 - 10/17/2024
 Reviewed By: SAFE 702 – 11/24/2024
 Approved By: SAFE 707 – 12/05/2024

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Washington Metropolitan Area Transit Authority

INVESTIGATION REPORT

FORM: INFR-COSI-ATCE-IR-24-0017-K99

COSI-SIGNAL ENGINEERING	Washington Metropolitan Area Transit Authority	Detailed Incident Analysis						
		Report Num:		[IR-24-0017-K99]				
		Requestor:		[REDACTED]				
		Date:		[2024-Sep-28]				
		From:		[REDACTED]				
To:		[REDACTED]						
Reported Data:		Time:		Train ID				
Description:		K99 Signal 302 Overrun (RED)		Interlocking Control: [YARD]		775		
Requested Analysis: Investigate Incident								
INITIAL STATE AS OF: [07.30.00]								
Name	STATE	AUTO	NAME	STATE	AUTO	NAME	STATE	AUTO
[Signal 302]	[STOP]	-	[Y1C-T]	[OCCUPIED]	-	[Switch 103]	[REVERSE]	-
[Signal 102]	[STOP]	-	[OS-109]	[VACANT]	-	[Switch 105]	[NORMAL]	-
[Signal 96]	[STOP]	-	[OS-103]	[VACANT]	-	[Switch 107]	[NORMAL]	-
[Signal 88]	[STOP]	-	[OS-91]	[VACANT]	-	[Switch 109]	[NORMAL]	-
[Switch 91A/B]	[NORMAL]	-	[OS-93]	[VACANT]	-	[Switch 301]	[NORMAL]	-
[Switch 93A/B]	[NORMAL]	-	[OS-304T]	[VACANT]	-	[Switch 303A/B]	[REVERSE]	-
RECORDED EVENT DATA								
TIME	LOCATION	STATUS/ CONTROL	DESCRIPTION		COMMENTS			
07.32.32	K99	CONTROL	Signal 102 Selected		Interlocking operator selects an entrance signal to start train movement. Signal 102 is on Track Y1C			
07.32.35	K99	STATUS	Route 102 to 96 Started Preset and Pending Control Clear		The RailComm system has determined that Signal 96 will be part of the eventual route to be selected. The system is performing action to prepare this route to be used			
07.32.36	K99	CONTROL	Signal 88 Selected		Interlocking operator selects an exit signal to start train movement. Signal 88 is on the loop around the yard towards the S&I shop.			
07.32.36	K99	STATUS	Switches 109, 103, and 93A/B Gapped/OUT OF CORRESPONDENCE		The RailComm system commands these switches to throw from their current position to align the appropriate route			
07.32.39	K99	STATUS	Switches indicate locked in the following positions: 91A/B, 103, and 107 NORMAL 93A/B and 109 REVERSE		Requisite switches have thrown and all switches involved in the route are locked in position. Locked switches cannot be thrown by Aux Call or routing.			

Approved
Approved: 10/04/2024


IR-24-0017-K99 – Red Signal Overrun, Signal 302
Page 3 of 6
INFR-COSI-ATCE-IR-24-0017-K99 Incident Analysis Report-10042024

Document 17: ATCE Oracle Report. Page 3 of 6. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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	Washington Metropolitan Area Transit Authority	
	INVESTIGATION REPORT	FORM: INFR-COSI-ATCE-IR-24-0017-K99

07.32.39	K99	STATUS	Route 102 to 96 Control Clear	The previously pending section of the route is verified to be aligned and ready to use.
07.32.40	K99	STATUS	Signal 88 Exit Clear	The RailComm system verifies that signal 88 is ready to be an exit and nothing is beyond it.
07.32.40	K99	STATUS	Signals 102, 104, 106, and 108 Running Time	A short timer runs on these signals. While the timer is running, they cannot be selected as entrances or exits of a route, as it will encroach on the existing route.
07.32.41	K99	STATUS	Switches 107, 111, and 113 LOCKED	Switches 107, 111, and 113 are in close proximity and share occupancy circuitry. While 111 and 113 are not used in this route, they lock into position together and cannot be routed across simultaneously.
07.32.43	K99	STATUS	Signal 102 CLEAR	Signal 102 goes LUNAR, allowing train to depart Track Y1C.
07.32.59	K99	STATUS	OS-103 OCCUPIED Signal 102 set as STOP Route 102 to 96 Slotted	Train movement begins and the lead car of the train passes Signal 102. As the train passes, occupancy causes the signal to go RED. The previously controlled clear route indicates as in use.
07.33.32	K99	STATUS	OS-109 OCCUPIED	The lead car of the train approaches Switch 109.
07.33.33	K99	STATUS	Signals 102, 104, 106, and 108 no longer running time	The route is in use and the timer is no longer necessary. These signals will now no longer be able to be selected as entrances or exits of routes due to track occupancy.
07.33.40	K99	STATUS	OS-91 OCCUPIED	The lead car of the train approaches switch 93A.
07.33.51	K99	STATUS	OS-93 OCCUPIED	The lead car of the train enters the 91/93 crossover.
07.33.51	K99	STATUS	Y1C-T VACANT	The tail end of the train has cleared signal 102 and Storage Track Y1C is no longer occupied by the train.
07.34.00	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	Switch movement due to poor adjustment of switch or track layout/rail tie movement.
07.34.08	K99	STATUS	86T OCCUPIED	The lead car of the train passes signal 96.
07.34.10	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	Switch movement due to poor adjustment of switch or track layout/rail tie movement.
07.34.12	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	
07.34.13	K99	STATUS	Switch 109 indicates OUT OF CORRESPONDENCE	
07.34.15	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	
07.34.19	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	

Approved
Approved: 10/04/2024

IR-24-0017-K99 – Red Signal Overrun, Signal 302
Page 4 of 6
INFR-COSI-ATCE-IR-24-0017-K99 Incident Analysis Report-10042024

Document 18: ATCE Oracle Report. Page 4 of 6. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
E24770

Drafted By: SAFE 770 - 10/17/2024
Reviewed By: SAFE 702 – 11/24/2024
Approved By: SAFE 707 – 12/05/2024

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INVESTIGATION REPORT

FORM: INFR-COSI-ATCE-IR-24-0017-K99

07.34.21	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	Switch movement due to poor adjustment of switch or track layout/rail tie movement.
07.34.26	K99	STATUS	Switch 109 indicates OUT OF CORRESPONDENCE	
07.34.29	K99	STATUS	OS-103 VACANT	The tail end of the train has cleared switch 107.
07.34.30	K99	STATUS	Switches 103, 105, and 107 UNLOCKED	Switches are no longer being fouled by a train and can be used for other train movement.
07.34.35	K99	STATUS	OS-109 VACANT	The tail end of the train has cleared switch 109
07.34.35	K99	STATUS	Switches 109, 111, and 113 UNLOCKED	Switches are no longer being fouled by a train and can be used for other train movement.
07.34.36	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	Switch movement due to poor adjustment of switch or track layout/rail tie movement.
07.34.38	K99	STATUS		
07.34.39	K99	STATUS		
07.34.41	K99	STATUS	OS-91 VACANT	The tail end of the train has cleared switch 93A.
07.34.45	K99	STATUS	Switch 93A/B indicates OUT OF CORRESPONDENCE	Switch movement due to poor adjustment of switch or track layout/rail tie movement.
07.34.52	K99	STATUS	OS-93 VACANT	The tail end of the train has cleared signal 96 and no longer fouls the 91A/B and 93A/B crossover
07.34.52	K99	STATUS	Switches 91A/B and 93A/B UNLOCKED	Switches are no longer being fouled by a train and can be used for other train movement.
07.34.58	K99	STATUS	304T OCCUPIED	The lead car of the train approaches Signal 88.
07.35.02	K99	STATUS	Signal 88 controlled STOP	Signal 88 is passed by the lead car and goes RED.
07.38.27	K99	STATUS	86T VACANT	The tail end of the train has cleared Signal 88
07.38.28	K99	STATUS	OS-301 OCCUPIED	The lead car of the train has passed Signal 302 (RED)
07.38.29	K99	STATUS	Switch 301 LOCKED	Switch 301 becomes unavailable to move by Aux Call or routing due to a train fouling it.
07.38.42	K99	STATUS	OS-303A OCCUPIED	The lead car of the train approaches Switch 303A, currently in the REVERSE position.
07.38.42	K99	STATUS	Switch 303A/B LOCKED	Switches 303A/B become unavailable to move by Aux Call or routing due to a train fouling it.
07.38.51	K99	STATUS	Switch 303A/B indicates OUT OF CORRESPONDENCE	The train has trailed switch 303A

Approved
Approved: 10/04/2024

IR-24-0017-K99 – Red Signal Overrun, Signal 302
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INFR-COSI-ATCE-IR-24-0017-K99 Incident Analysis Report-10042024

Document 19: ATCE Oracle Report. Page 5 of 6. (Redacted)

Incident Date: 09/28/2024 Time: 07:54 hours
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07.38.54	K99	STATUS	132T OCCUPIED	The train approaches Signal 134 and stops movement
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Circuit Power Failure: Yes ☐ No ☒ Processor Failure: Yes ☐ No ☒ Power Transfer: Yes ☐ No ☒


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Approved
Approved: 10/04/2024

IR-24-0017-K99 – Red Signal Overrun, Signal 302
Page 6 of 6
INFR-COSI-ATCE-IR-24-0017-K99 Incident Analysis Report-10042024

Document 20: ATCE Oracle Report. Page 6 of 6. (Redacted)

Appendix D – Work Orders



Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
Work Order Details

Work Order #: 18955768
Type: CM

Page 1 of 1
MXAZP

18955768

Status: CLOSE
09/30/2024 06:46

Work Description: K99 Yard, Safety request Radio Operational test, include Track#11
Job Plan Description:

Work Information			
Asset: 60090	RADIO, CRCS, T53	Owning Office: COMM-TSSM-RADIO	Parent:
Asset Tag:		Maintenance Office: COMM-TSSM-RADIO	Create Date: 09/29/2024 09:52
Asset SIN: CRCS T53		Labor Group: COMM/RADIO	Actual Start: 09/29/2024 21:31
Location: 7025	T53, CRCS RADIO ANTENNA SITE, RESTON INTERNATIONAL CENTER	Crew:	Actual Comp: 09/29/2024 21:31
Work Location:		Lead:	Item: N80040084
Failure Class: COMR003	RADIO COMMUNICATIONS SYSTEMS	GL Account: 00000000-33540-5049290-042-*****_GPR	
Problem Code: 2505	COMMS FAILURE	Supervisor:	Target Start:
Requested:		Requestor Phone: 202-555-1234	Target Comp:
Chain Mark Start:		Chain Mark End:	Scheduled Start:
Create-Mileage: 0.0		Complete-Mileage: 0.0	

Task On

Task ID	Description
10	Radio check Loud and Clear. RSSI OK. See description. On Maximo WO 1895568 about Safety requesting Radio Operation check at K99 yard track #11. [REDACTED] and [REDACTED] reported to K99 Yard. Requested permission from the Tower and walked Track#11 performing radio checks, all tests were loud and clear. We also performed RSSI measured and the levels range 82 to 124. Currently, Track# 11 at K99 Yard is tested loud and clear.

Component:	Work Accompl:	Reason:	Status:	Position:	Warranty?:
			CLOSE		N

Actual Labor

Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost
10	[REDACTED]	09/29/2024	09/29/2024	19:00	22:00	Y	03:00	00:00	\$147.43
10	[REDACTED]	09/29/2024	09/29/2024	19:00	22:00	Y	03:00	00:00	\$149.61
Total Actual Hour/Labor:							06:00	00:00	\$297.03

Failure Reporting

Cause	Remedy	Supervisor	Remark Date
1397 COMM OPS RADIO SYSTEM PROBLEM	2477 NO DEFECT; OPERATOR ERROR	[REDACTED]	09/29/2024

Remarks: Radio check loud and clear. RSSI tested good. No Trouble found.

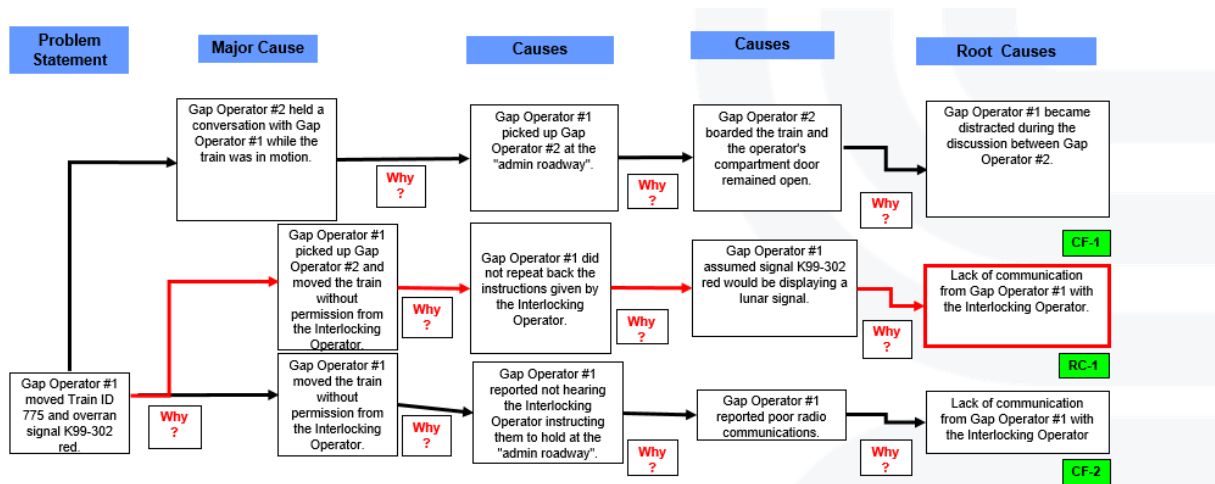
WT_pluat_woprnt.pld:sign 10/2/2024 14:53

Document 21: Communications work order.

Incident Date: 09/28/2024 Time: 07:54 hours
Final Report – Red Signal Overrun Rev. 1
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Approved By: SAFE 707 – 12/05/2024

Appendix E – Why-Tree Analysis



Root Cause Analysis

E24770 – Red Signal Overrun – West Falls Church Yard



Incident Date: 09/28/2024 Time: 07:54 hours
 Final Report – Red Signal Overrun Rev. 1
 E24770

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