



WMSC Commissioner Brief: W-0070 – Red Signal Overrun – U Street Station – November 27, 2020

Prepared for Washington Metrorail Safety Commission meeting on April 13, 2021 where commissioners determined additional information was required; Revised for meeting on December 7, 2021

Safety event summary:

During Yellow and Green Line single tracking between Mt. Vernon Square Station and U Street Station due to an unauthorized person on the roadway, Metrorail's Automated Information Management (AIM) system displayed two trains labeled as Train ID 308 that were heading in opposite directions approaching the single tracking area.

As the northbound train entering Mount Vernon Square toward U Street crossed over from Track 1 to Track 2 to continue north, the radio controller in the Rail Operations Control Center (ROCC) gave the southbound train at U Street a permissive block to Mount Vernon Square, under the incorrect assumption that the controller was speaking to the northbound train.

After the southbound train at U Street had moved in accordance with the direction from the ROCC, the button controller identified the risk of a potential miscommunication to the radio controller, and the radio controller asked the Train Operator of the southbound train to stop. That train had already passed red signal E03-08 and moved into and partly through the interlocking outside the U Street Station, and was therefore on the same track as the other Train 308.

The train trailed switch E03-3B but remained on the rails after pushing the switch point up underneath the train wheels. Switch 3B was the second switch the train passed leaving the U Street Station platform. Switch 1B was in the normal position allowing for a straight through move remaining on Track 2. Switch 3B was in a reverse position to direct the train coming in the other direction through the interlocking across to Track 1. There was minor damage to switch 3B's switch point when the southbound train trailed the switch. Event recorder data show the train was moving approximately 10 mph as it reached switch 3B, just after the train operator had initiated braking. The train stopped 27 feet beyond that switch.

Metrorail customers on the train were walked back to the platform through the rear cars.

In addition to the single-tracking between Mt. Vernon Square and U Street, these controllers were also addressing a switch out of correspondence at Huntington Station at the time of this event, which could have contributed to an excessive workload.

Train service was suspended due to this event for approximately three hours.

Probable Cause:

The probable cause of this event was Metrorail systems that allow for multiple trains to have the same train identification number and a lack of training and procedures for personnel to maintain adequate shared situational awareness when multiple trains have the same identification number. Contributing to this event was the excessive workload on rail traffic controllers, particularly during emergencies and other unusual incidents on the roadway.



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

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

Corrective Actions:

Initial, provided before April 13, 2021 meeting:

Metrorail is providing additional training for the radio controller and train operator with a focus on communications, movement and procedures.

Metrorail also developed and distributed a lessons learned document for ROCC personnel related to this event.

Additional, provided before December 7, 2021 meeting:

Metrorail has raised the notification level of the duplicate train ID alarm in the AIM system in the ROCC to a “super major alarm” as of July 2021, and is training ROCC personnel on actions to be taken, including changing the train ID to a new number.

Metrorail has begun revisions to its scheduling plans intended to avoid duplicate train IDs. Generally, these revisions will provide for odd numbered trains moving in one direction (east or northbound) and even numbered trains moving in the other direction (west or southbound). The development of these scheduling software adjustments began in October 2021 after additional WMSC follow-up. The adjustments are expected to be implemented in 2022.

WMSC staff observations:

This event could have led to a head on collision, derailment or other even more serious outcome.

Allowing two trains with identical Train IDs without clear procedures in place to address the issue creates unnecessary safety risks.

The duplicate train identification numbers in this event were created due to the ongoing service disruptions. When service patterns become unplanned and schedules are no longer applicable, Metrorail does not coordinate train identification numbers when the trains depart terminals such as Greenbelt and Huntington. Metrorail train identification numbers are currently determined or entered by train operators, ROCC controllers and terminal supervisors. Metrorail could consider utilizing more of the available numbers for train Identification (00-99), particularly during unplanned emergencies.

This event also suggests that Metrorail may want to consider improving its stop and proceed software to reset when doors are opened, so that there is an additional level of protection and time to process and consider unintended movements without speed commands. This feature could also reduce workload on rail controllers by allowing for low-speed movement within the platform limits to properly berth a train without communication with controllers.

Staff recommendation: Adopt final report.



Washington Metro Area Transit Authority

Department of Safety and Environmental
Management (SAFE)

FINAL REPORT OF INVESTIGATION A&I E20469

Date of Event:	11/27/2020
Type of Event:	Red Signal Overrun
Incident Time:	12:47 hrs.
Location:	U Street Station, Track 2 (E03-08)
Time and How received by SAFE:	12:47 hrs. SAFE On-Call Phone
WMSC Notification Time:	14:33 hrs.
Responding Safety Officers:	WMATA SAFE: Yes WMSC: No Other: N/A
Rail Vehicle:	L7062.7063X7201.7200X7016.7017X7155 7154T
Injuries:	None
Damage:	None
Emergency Responders:	ATCM, MTPD, RTRA, SAFE and TRST.

U. Street Station – Red Signal Overrun

November 27, 2020

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Abbreviations and Acronyms

AIMS	Advanced Information Management System
ATC	Automatic Train Control
ATCM	Automatic Train Control Engineering
ARS	Audio Recording Service
CENV	Vehicle Program Services
CM	Chain Marker
CMNT	Car Maintenance
ERT	Emergency Response Team
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
POC	Point of Contact
ROCC	Rail Operations Control Center
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
SMS I/A	Safety Measurement System Incidents/Accidents
TWC	Train Wayside Communication

Executive Summary

On Friday, November 27, 2020, at 12:06 hrs., the Rail Operations Control Center (ROCC) implemented a single-track operation between Mt. Vernon Station and U Street Station by way of Track 2 due to a Metro Transit Police Department (MTPD) investigation of an unauthorized person on the roadway.

At approximately 12:41 hrs., a Yellow Line train, Train ID 308 consist [L7062-63x7201-00x7016-17x7155-54T] in approach to U Street Station, contacted the ROCC and notified the Radio Rail Traffic Controller (RTC) that they were standing by E03-08 signal red and requested permission to utilize the "Stop and Proceed" method to properly berth their train on the platform. The Radio RTC acknowledged the request and granted the Train Operator of Train ID 308 permission to properly berth their train at the 8-car marker at U Street Station, Track 2.

At the time of the above transmissions, the Advanced Information Management System (AIMS) displayed an additional Train ID 308 traveling in the opposite direction, through the single tracking area in approach to Mt. Vernon Station, Track 2.

At approximately 12:42 hrs., the Train Operator located at U Street Station, Track 2, contacted the Radio RTC and reported that they were standing by a red signal. Without verifying, the Radio RTC, assumed they were contacted by the 308 Train Operator in approach to Mt. Vernon and proceeded to give the Train Operator a permissive block to Mt. Vernon Square Station, Track 2, 8-car marker. The Train Operator operating Train 308 at U Street Station, Track 2, repeated the permissive block and ultimately overran E03-08 signal; that was displaying a red aspect.

At approximately 12:43 hrs., the Radio RTC attempted to have the Train Operator operating Train ID 308 at U Street Station to stop their train; the Train Operator reported that their train was moving and currently located within the interlocking inside the tunnel, verifying that their consist passed the E03-08 signal red. The Radio RTC dispatched a Rail Transportation (RTRA) Supervisor and Emergency Response Team (ERT) to access the interlocking and provide a damage report. All customers and Train Operator aboard the train were escorted onto the platform without incident or injury.

Subsequently, the Radio RTC and the Train Operator were removed from service for Post-Incident toxicology Testing. ROCC removed the Incident Train for a Post-Incident Inspection.

At approximately 13:01 hrs., an RTRA Supervisor arrived on the scene; the Radio RTC instructed the RTRA Supervisor to inspect the switches at U Street Station, Track 2 utilizing Foul Time protection and report any damages. The Emergency Response Team (ERT) also arrived on the scene and was given permission to enter the roadway under Foul Time protection. At approximately 13:06 hrs., the RTRA Supervisor reported that it appeared the Train jumped E03-08 3B switch; however, the train remained on the rails; the RTRA Supervisor reported minor damage to E03-3B switch.

At 14:15 hrs., Automatic Train Control Maintenance Department (ATCM) personnel arrived on the scene to inspect U Street Station Interlocking utilizing Foul Time protection. At 14:24 hrs., ERT requested that ROCC de-energize third rail power at U Street Station, Track 2. Third rail power was confirmed de-energized at Chain Marker (CM) E2-073+00. At 14:48 hrs., ATCM reported that U Street Station interlocking was clamped normal and that third rail power may be restored for train movement. At 15:35 hrs., with third rail power restored, Train ID 308 was given an absolute block to U Street Station, Track 2 platform.

AIMS indicated Train ID 308 overran E03-08 signal displaying a red aspect, bypassing E03-1B switch, which was in normal position and trailed switch E03-3B switch, which was lying in reverse position due to single-track operations related to the separate MTPD incident.

Based on Vehicle Program Services (CENV) data, Lead Car 7062 traveled 333.3 feet past the E03-08 signal red to the Point of Rest (POR) and did not reveal any anomalies with the rail cars or trucks/components, which may have contributed to the Red Signal Overrun Event.

SAFE determined the probable cause of the Red Signal Overrun event at U Street Station on November 27, 2020, was Metrorail systems that allow for multiple trains to have the same train identification number and a lack of training and procedures for personnel to maintain adequate shared situational awareness when multiple trains have the same identification number. Contributing to this event was the excessive workload on rail traffic controllers, particularly during emergencies or other unusual incidents on the roadway.

As a result of this final investigation, SAFE makes the following safety recommendations:

To RTRA, Train Operator should undergo re-training with an emphasis on movement procedures when operating on mainline rules and procedures.

To RTRA, provide lessons learned to discuss the event and findings to include previous red signal overrun events involving RTRA personnel.

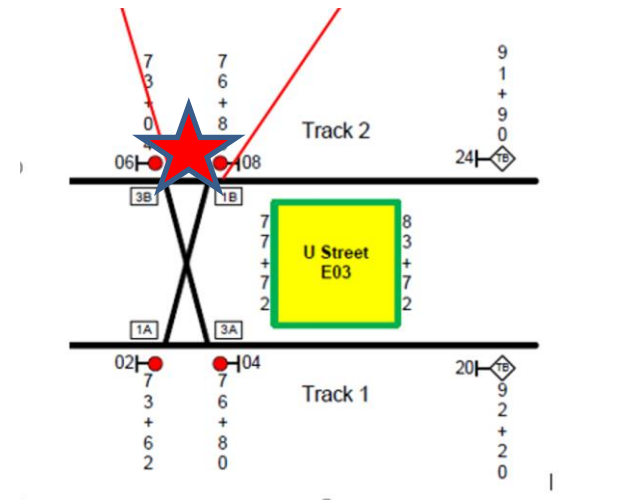
To ROCC, Radio RTC should undergo re-training on radio protocol, emphasizing detailed communications with Train Operators.

To ROCC, provide lessons learned to discuss the event and findings to include previous red signal overrun events involving RTRA personnel.

Incident Site

U Street Station Track 2 – E03-08 Signal.

Field Sketch/Schematics



Purpose and Scope

The purpose of this incident 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.

Investigation Process and Methods

Upon receiving notification of the Red Signal Overrun at U Street Station on November 27, 2020, 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.

Investigation Methods

The final investigative methodologies included the following:

- Physical Site Assessment
- Formal Interviews – SAFE interviewed three (3) individual(s) as part of this investigation. Interviews will include persons present during and/or after the incident and those directly involved in the response process. SAFE interviewed the following individuals:
 - Radio Rail Traffic Controller (RTC)
 - Button Rail Traffic Controller

- Train Operator
- Informal Interviews – Collected through conversations with individuals during the course of the investigation to provide background and supporting information
- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
 - Employee Training Procedures & Records
 - Certifications
 - The 30-Day work history review
 - MSRPH
 - National Oceanic Atmospheric Administration (NOAA) data review
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback [Radio and Phone Communications]
 - Vehicles Program Services (CENV)
 - Office of Car Maintenance (CMNT)
 - Office of Automatic Train Control (ATC)

Investigation

On Friday, November 27, 2020, at 12:06 hrs., the ROCC implemented a single-track operation between Mt. Vernon Station to U Street Station by way of Track 2 due to an MTPD investigation of an unauthorized person on the roadway.

At 12:41 hrs., a Yellow Line train, Train ID 308 consist [L7062-63x7201-00x7016-17x7155-54T], in approach to U Street Station, contacted the Rail Operations Control Center (ROCC) and notified the Radio Rail Traffic Controller (RTC) that they were standing by E03-08 signal red. Train Operator of Train ID 308 requested permission to utilize the “Stop and Proceed” method to properly berth their train on the platform. The Radio RTC acknowledged the request and granted the Train Operator of Train ID 308 permission to properly berth their train at the 8-car marker at U Street Station, Track 2.

At approximately 12:42 hrs., an additional consist, also designated as Train ID 308 in approach to Mt. Vernon Square Station, Track 1, entered the single-track operation and crossed over from Track 1 to Track 2. The Train Operator of Train ID 308 located at U Street Station, Track 2, contacted the Radio RTC and reported that they were standing by at E03-08 signal red. The Radio RTC gave the Train Operator located at U Street Station, Track 2, a permissive block to Mt. Vernon Square Station, Track 2, 8-car marker under the impression that they were communicating with Train ID 308 located at Mt. Vernon Square, Track 1. The Train Operator operating Train 308 at U Street Station, Track 2, repeated the permissive block and ultimately overran E03-08 signal red.

At approximately 12:43 hrs., the Radio RTC attempted to have the Train Operator Operating Train ID 308 at U Street Station stop their train; the Train Operator reported that their train was moving and currently located within the interlocking inside the tunnel, verifying that their consist passed

the E03-08 signal red. The Radio RTC dispatched an RTRA Supervisor and ERT to access the interlocking and provide a damage report. All customers and Train Operator aboard the train were escorted onto the platform without incident or injury.

Subsequently, RTRA removed the Train Operator from service for Post-Incident Toxicology Testing. RTRA removed the Incident Train from service Post-Incident Inspection.

At approximately 13:01 hrs., an RTRA Supervisor arrived on the scene; the Radio RTC instructed the RTRA Supervisor to inspect the switches at U Street Station, Track 2 utilizing Foul Time protection and report any damages. The Emergency Response Team (ERT) also arrived on the scene and was given permission to enter the roadway under Foul Time protection. At approximately 13:06 hrs., the RTRA Supervisor reported that it appeared the Train jumped E03-08 3B switch; however, the train did not derail; the RTRA Supervisor reported minor damage to the E03-3B switch. At 14:15 hrs., ATCM personnel arrived on the scene to inspect U Street Station Interlocking utilizing Foul Time protection. At 14:24 hrs., ERT requested that ROCC de-energize third rail power at U Street Station, Track 2. Third rail power was confirmed de-energized at CM E2-073+00. At 14:48 hrs., ATCM reported that U Street Station interlocking was clamped normal and that third rail power may be restored for train movement. At 15:35 hrs., with third rail power restored, the Radio RTC gave the Train Operator of Train ID 308 an absolute block to U Street Station, Track 2 platform.

Chronological Event Timeline

SAFE investigations from the ARS include Rail OPS 3.

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

Time	Description
12:41:10 hrs.	Train ID 308 in approach to U Street Station, track 2 requested permission to utilize "stop and proceed" method to properly berth their train. Radio RTC granted the Train Operator permission to utilize stop and proceed. [Radio]
12:42:23 hrs.	Train ID 308 contacted the Radio RTC and reported that E03-08 signal was displaying a red aspect. The Radio RTC gave the Train Operator a permissive block to Mt. Vernon Square Station, Track 2. [Radio]
12:42:42 hrs.	Button RTC notifies the Radio RTC that there were two (2) trains with an ID of 308 and to ensure they were speaking to the correct train. [Ambient]
12:43:00 hrs.	The Radio RTC attempted to have the Train Operator Train ID 308 stop their train. The Train Operator reported that they passed the E03-08 signal red and that they were in the interlocking [Radio]. The Radio RTC dispatched an RTRA Supervisor and ERT to access the interlocking and provide a damage report. All passengers aboard the train were keyed off and safely on the platform without incident.
13:01:04 hrs.	RTRA Supervisor and ERT arrived on the scene. The Radio RTC instructed the Supervisor and ERT to enter the roadway utilizing Foul Time to inspect the switches. [Radio]
13:06:30 hrs.	The RTRA Supervisor reported that the train jumped the E03-3B switch; however, the train remained on the rails. The Supervisor reported minor damage to the E03-3B switch point. [Radio]

14:15:00 hrs.	ATCM arrived on the scene to assist. [Radio]
14:24:24 hrs.	Third rail power de-energized at CM E2-073+00.
14:48:02 hrs.	ATCM reported that U Street Station interlocking was clamped in the normal position.

Office of Car Maintenance (CMNT)

CMNT personnel performed an exterior and interior inspection of the affected consist and found no damages. Additionally, the Master Controller operation was checked and found to be working properly.

Vehicles Program Services

ER Data Graph/Sequence of Events

Based on CENV analysis of the downloaded VMDS and ER, details from the data analysis are as follows:

Time	Description
12:40:32 hrs.	Train ID 308 entered U. Street station limits [approximately 534 feet. away from the 8-car marker], and speed commands dropped to zero (0) [due to red signal at the interlocking], Overspeed Alarm activated, Full Service Brake Train Line was lost, ATP (Automatic Train Protection) requested Full-Service Brake Application, and subsequently Logic Control Unit (LCU) enforced Full-Service Brake.
12:40:42 hrs.	Ten seconds after the Full-Service Brake was enforced, the consist came to a complete stop 397 feet away from the 8-car marker.
12:41:04 hrs.	Train Operator initiated “stop and proceed” and started moving towards the 8-car marker.
12:41:37 hrs.	Train Operator stopped at the 8-car marker and serviced the station.
12:42:45 hrs.	Train Operator took to a point of power and left the U Street Station platform with Master Controller on P1-P4 (the train was still in “stop and proceed”).
12:42:57 hrs.	The consist traveled 100 feet from the end of the U Street Station platform and overran the red signal with the Master Controller placed in coast and speed of 7 mph.
12:42:58 hrs.	The consist straddled switch 1B at Chain Marker (CM) E2-76+80 [switch was in the normal position] with the Master Controller on coast and speed of 8 mph.
12:43:18 hrs.	The consist straddled switch 3B at CM E2-73+04 [switch positioned in reverse] with the Master Controller on B1-B3 and speed of 10 mph.
12:43:23 hrs.	Master Controller stayed on B1-B3 after straddling the second switch and eventually stopped approximately 27 ft past the second switch.

NOTE: CENV reported that no propulsion/brake faults were observed during data analysis or in the fault logs and confirmed Train Wayside Communication (TWC) was working correctly.

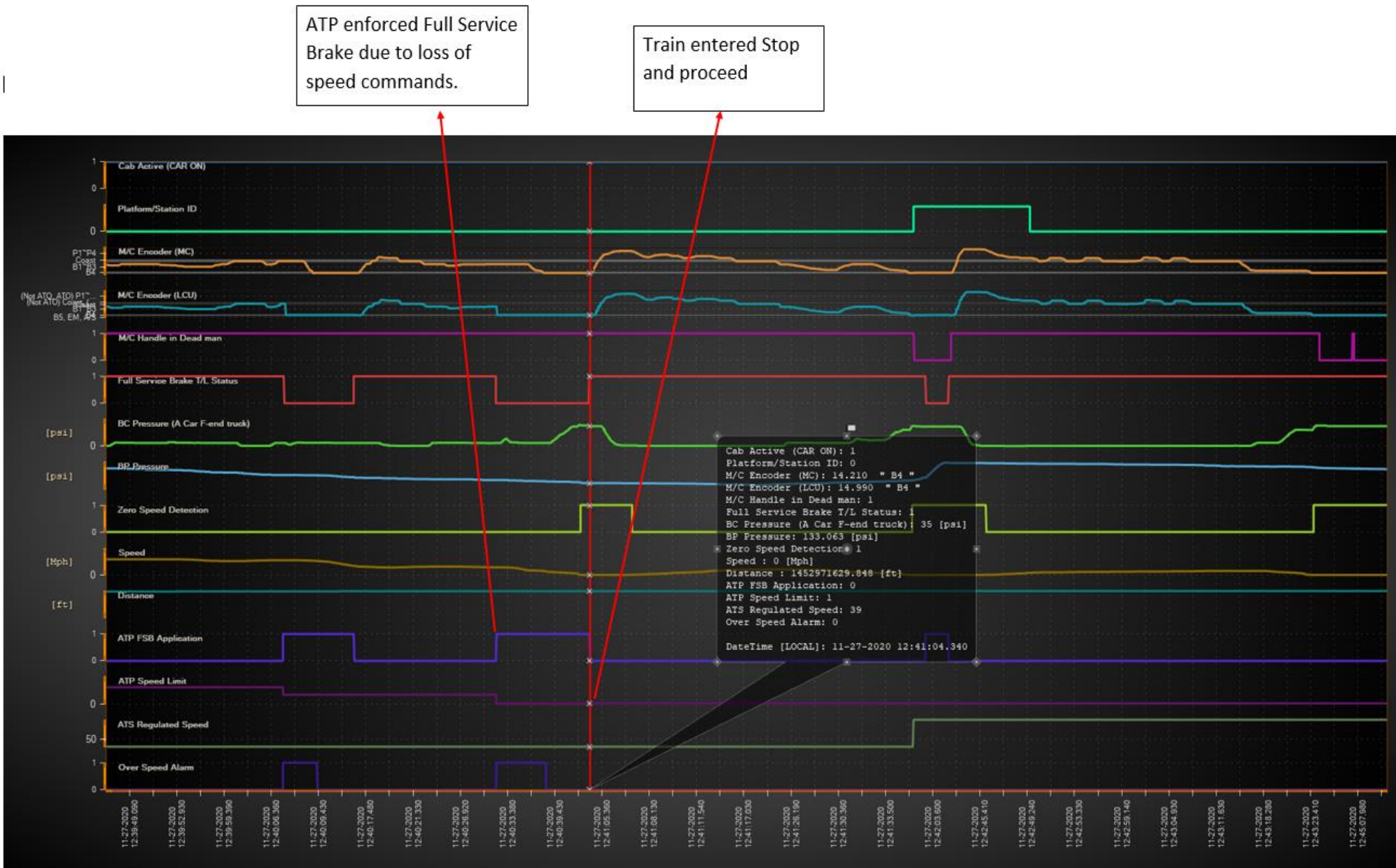


Diagram 1- ER Graphical Analysis prior to servicing the station.

Train 308 leaves U street
at 12:42:55 with Master
Controller on P1-P4

12:42:57 Train 308 traveled 100
feet from the end of U Street
Platform and Overran Red Signal
with the Master Controller Placed
in CST and Speed of 7mph.

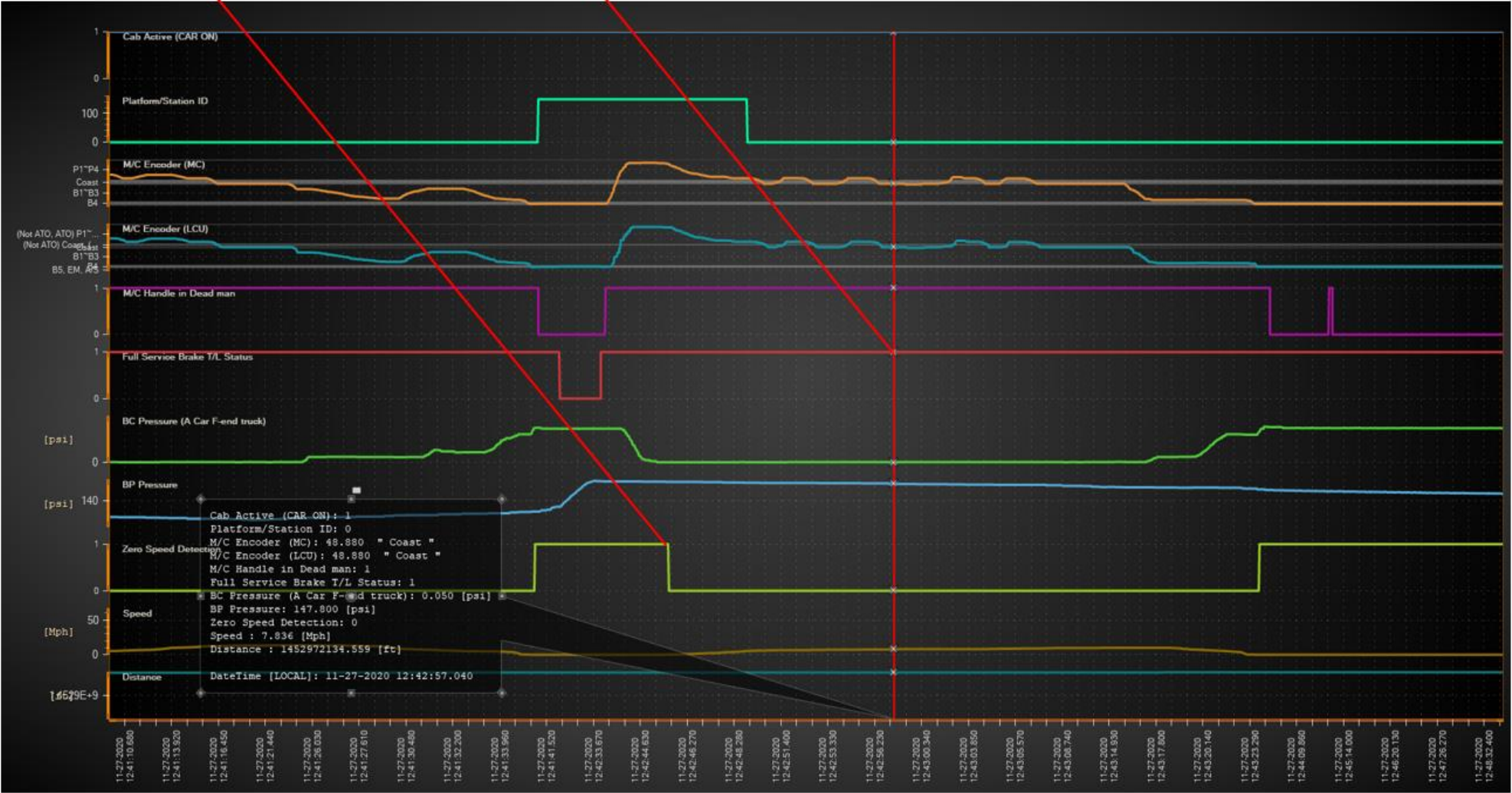


Diagram 2 - ER Graphical Analysis after servicing the station.

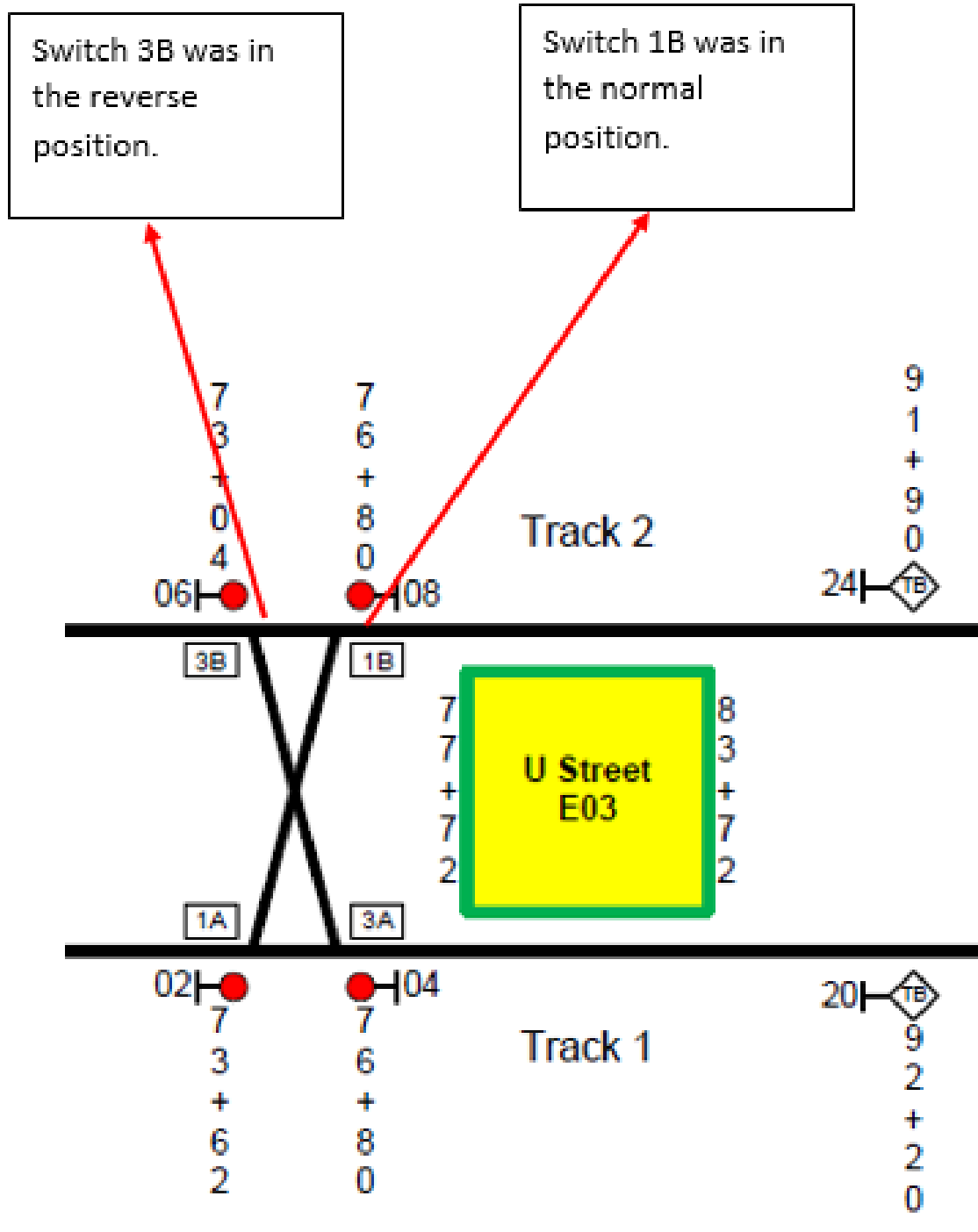




Photo 1 – E03-08 signal displaying a red aspect as seen from the 8-car marker.



Photo 2 – E03 Switch 1B in the normal position.



Photo 3 – E03 Switch 3B in the reverse position.



Photo 4 – Minor chip in the E03-08 switch point.

Advanced Information Management System (AIMS)

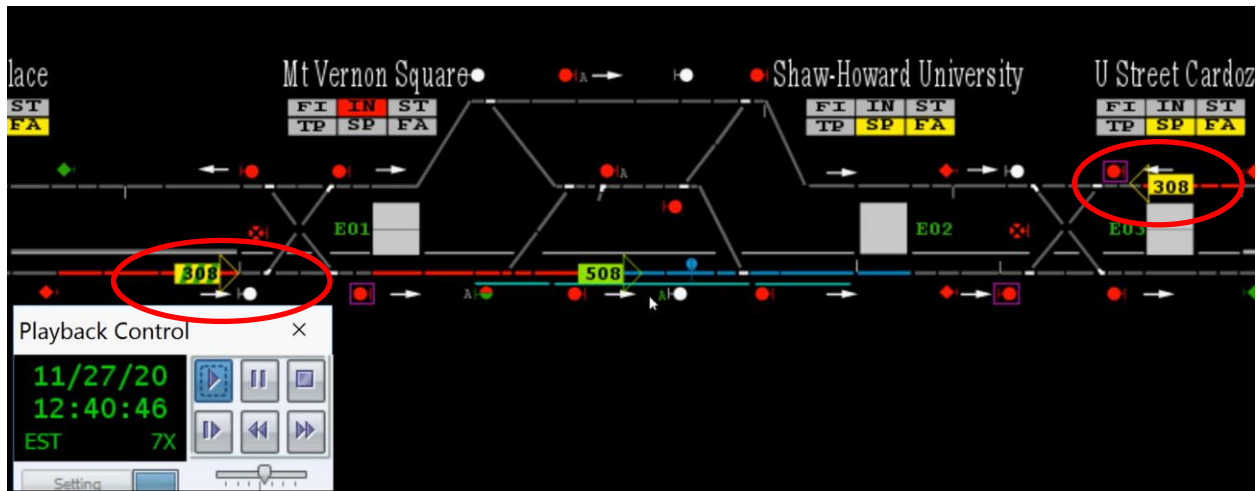


Diagram 4 – AIMS indication displays two trains with identical IDs; one located on Track 1 in approach to Mt. Vernon Square in preparation to enter the single-track area and the second train located at U Street Station, Track 2.

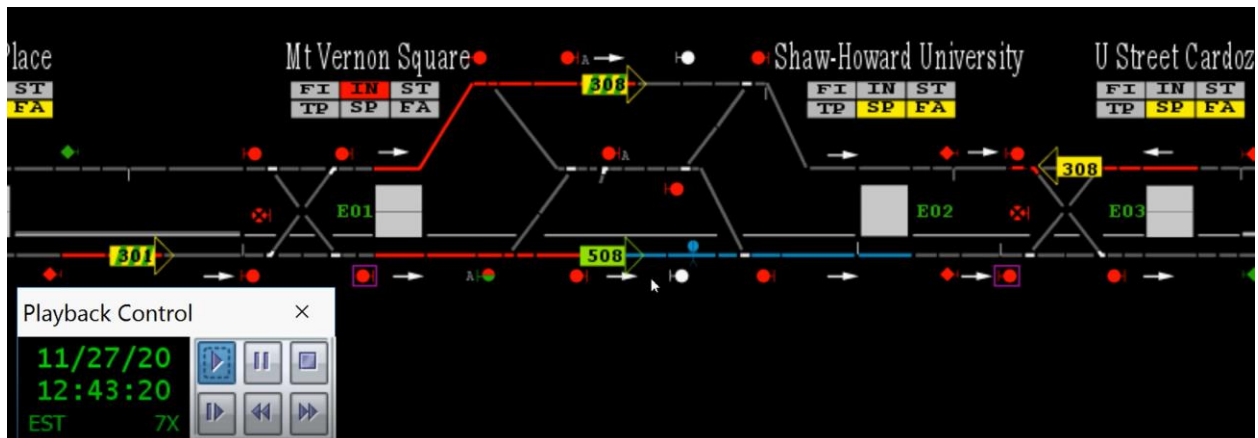


Diagram 5 – Train ID 308 traversing the single-track area; an additional train with an identical Train ID located at U Street Station, track 2 passed E03-08 signal while displaying a red aspect.

Office of Automatic Train Control (ATC)

At 12:34 hrs., AIMS data shows E03-08 signal was displaying a red aspect, E03-1B switch was lying in the normal position and E03-3B switch was in reversed position. Track circuit E2-78 was occupied, indicating Train ID 308 (Destination code 31) occupies E03 (U Street Station, Track 2) platform. The E03-1B switch was lying in a normal position, and the E03-3B switch remained in a reverse position. Signal E03-06 was lunar. E03-08 signal remained red. At 12:41 hrs., Train ID 308 departed U Street Station, track 2 platform and occupied track circuit 77, on approach to U Street Station interlocking at E03-08 signal red. At 12:43 hrs., Train ID 308 occupied track circuit 1BT and triggered the E03-06 signal to change to a red signal.

Automatic Train Control Engineering (ATCE)

ATC Engineering Analysis:

Time	Description
12:34:57 hrs.	Signal E08-08 was displaying a red aspect.
12:36:50 hrs.	Switch Position E03-3B reversed position.
12:36:51 hrs.	Signal E03-06 was lunar.
12:40:34 hrs.	Track circuit E2-78 occupied.
12:41:35 hrs.	Track circuit E2-77 occupied.
12:43:01 hrs.	Track circuit 1BT occupied; signal E03-06 changed to red. Track circuit 3BT occupied.
15:00:22 hrs.	After inspection E03-1B switch was clamped, E03-3B switch was cranked over and clamped to the normal position.
15:30:13 hrs.	Train 308 was moved by Car equipment back to U Street Station, Track 2 platform.
15:45:12 hrs.	ATC, ERT, and TRST personnel fully inspected the 3B switch point and found a small bend on the tip of the left point.

Interview Findings

Based on the investigation launched into the Red Signal Overrun, SAFE conducted three (3) virtual interviews, including the investigation team and relevant Metro management. These interviews were conducted over one week after the event and identified the following key findings associated with this event, as follows:

At the time of the incident, the RTC's were working on two separate incidents simultaneously. The RTC's were involved in a switch that went out of correspondence at Huntington Station in addition to the MTPD incident at Mt. Vernon Square Station. The Radio RTC was aware that they were to notify all trains if they were facing a red aspect. When the Radio RTC instructed Train ID 308 to proceed on a permissive block, they were under the impression they were communicating with Train 308 located at Mt. Vernon Square track one, despite that Train Operator not losing speed commands.

Findings

- AIMS displayed two trains with identical Train IDs [Train ID 308]. One train was located at Mt. Vernon Square Station, Track 2 and the second train was located at U Street Station, Track 2.
- The Radio RTC did not specify which Train Operator they were communicating with by not providing the Train ID number, location and track. The Radio RTC was in direct violation of MSRP General Rule 1.78, which states: "Employee shall, when communicating with ROCC, provide train/unit number or name/title and location (including track number when appropriate). ROCC shall acknowledge employee by repeating train number, location and track."

- ROCC established single-track operations between Mt. Vernon Square Station and U Street Station due to an MTPD incident at Mt. Vernon Square Station, Track 1, that required third rail power to be de-energized.
- All customers aboard the train were escorted onto the platform without incident or injury.
- CENV's investigation did not reveal any anomalies with the rail cars or trucks/components, which may have contributed to the Red Signal Overrun event.
- CENV also reviewed the report from ATC and did not find any abnormalities within U Street Station interlocking.

Weather

At the time of the incident, NOAA recorded the temperature at 56° F and clear. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Washington, DC.)

Human Factors

Fatigue

Based on SAFE interview question related to Fatigue Factors and a review of the Radio RTC and the Train Operator's 30-day work history, SAFE determined, the employees' hours of service were in accordance with WMATA's *Fatigue Risk Management Policy 10.6* and *Hours of Service Limitations for Prevention of Fatigue Policy 10.7* and discounted Fatigue as a contributing factor for this event.

Post-Incident Toxicology Testing

After reviewing all employee post-incident testing results, SAFE determined that the Radio RTC and the Train Operator involved were not violating the Drug and Alcohol Policy and Testing Program 7.7. 3/5, therefore, being under the influence of a controlled substance has been excluded as a contributing factor. The Button RTC was not removed from service for post-incident testing.

Probable Cause Statement

The probable cause of this event was Metrorail systems that allow for multiple trains to have the same train identification number and a lack of training and procedures for personnel to maintain adequate shared situational awareness when multiple trains have the same identification number. Contributing to this event was the excessive workload on rail traffic controllers, particularly during emergencies or other unusual incidents on the roadway.

Additionally, the Radio RTC was not in compliance with Metrorail Safety Rules & Procedures Handbook (MSRPH) Rule 1.78, which states: *“Employee shall, when communicating with ROCC, provide train/unit number or name/title and location (including track number when appropriate). ROCC shall acknowledge employee by repeating train number, location and track.”*

SAFE Recommendations

The following are the recommendations and corrective actions identified as a result of this investigation. These recommendations and corrective actions are tracked using WMATA's Safety Measurement System Incidents/Accidents (SMS I/A) Module and are verified by SAFE upon completion. The responsible department is identified in the corrective action code. Refer to the SMS I/A module for additional information.

Corrective Action Code	Description
90453_SAFECAPS_RTRA_001	Train Operator should undergo re-training with an emphasis on movement procedures when operating on mainline rules and procedures.
90453_SAFECAPS_ROCC_002	Provide lessons learned to discuss the event and findings to include previous red signal overrun events involving RTRA personnel.
90453_SAFECAPS_ROCC_003	Radio RTC should undergo re-training on radio protocol, emphasizing detailed communications with Train Operators.
90453_SAFECAPS_ROCC_004	Memorandum requiring the Radio and Button RTC immediately address Trains with identical ID's via AIM and confirmed repeat back with the Train Operators of their updated ID's.

Appendix A - Interview Summaries

Interview Details

Rail Operations Control Center (ROCC)

Radio Rail Traffic Controller

The Radio RTC is a WMATA employee with two (1) year of experience as a Rail Traffic Controller and (2) years of service in including a Student Rail Traffic Controller.

Based on the SAFE interview, the Radio RTC stated that they were involved in two emergency incidents simultaneously with one Metro Transit Police Department (MTPD) incident at Mt. Vernon Square Station interlocking that required third rail power to be de-energized on track one. The Radio RTC reported Train ID 308 track two in approach to U. Street Station contacted them on the radio and requested to utilize “Stop and Proceed” and to properly berth their train on the platform. The Radio RTC reported that after giving Train ID 308 permission to properly berth at U. Street Stations another train with the identical Train ID was in approach to Mt. Vernon Square Station track one in position to enter the single tracking area between Mt. Vernon Square and U. Street Station. The Radio RTC gave the Train in approach to the single tracking area a permissive block to Mt. Vernon Square track two. The Radio RTC reported that they assumed that Train ID 308 in approach to the single tracking area requested a permissive block despite the Train Operator stating they lost speed commands. The Radio RTC stated that they were not aware of whether the Train Operator for Train ID 308 at U. Street Station track 2 had knowledge of the single-track operation. The Radio RTC stated that the Button Controller told them about the two trains with identical ID's after the Radio RTC issued the permissive block. The Radio RTC stated that they did not recall if they notified Train ID 308 at U. Street Station of the red aspect at E03-08 signal.

Button Rail Traffic Controller

The Button RTC is a WMATA employee with two (6) years of experience as a Train Operator and (23) years of service in various positions as Bus Operator, Train Operator, Station Manager and Terminal Supervisor.

Based on the SAFE interview, the Button RTC reported that they were involved in an MTPD incident where there was an unauthorized person on the roadway. the Button RTC stated that they needed to de-energize third rail power on track one to allow ERT to escort MTPD to the roadway in order to retrieve evidence from the roadway. the Button RTC stated that while personnel were on the roadway, they went into a single-track operation between Mt. Vernon Square and U. Street Stations. The Button Controller stated that AIM displayed Train ID 308 in approach to E01-02 signal to crossover from Mt. Vernon Square Station track one to Mt. Vernon Square Station track 2. The Button RTC stated they heard the Radio RTC give Train ID 308 a permissive block to Mt. Vernon Square track 2; upon hearing the permissive block the Button RTC stated that they approached the Radio RTC because they observed an additional Train ID 308 at U. Street Station track 2 holding at a red signal. The Button RTC stated that they told the Radio RTC to ensure they were communicating with the correct Train ID, they stated that they instructed the Radio RTC to ensure that that Train ID 308 at U. Street Station does not move their train. The Button RTC reported that the Radio RTC attempted to prevent Train ID 308 at U.

Street Station from moving their train to no avail. The Button RTC observed on AIMS that Train ID 308 had indeed passed E03-08 signal red. The Button RTC stated that they had to stop the Train ID 308 that was in the single tracking area and have that Train Operator reverse ends. The Button RTC reported that once ERT and MTPD cleared the roadway, they dispatched an RTRA Supervisor to U. Street Station for assistance.

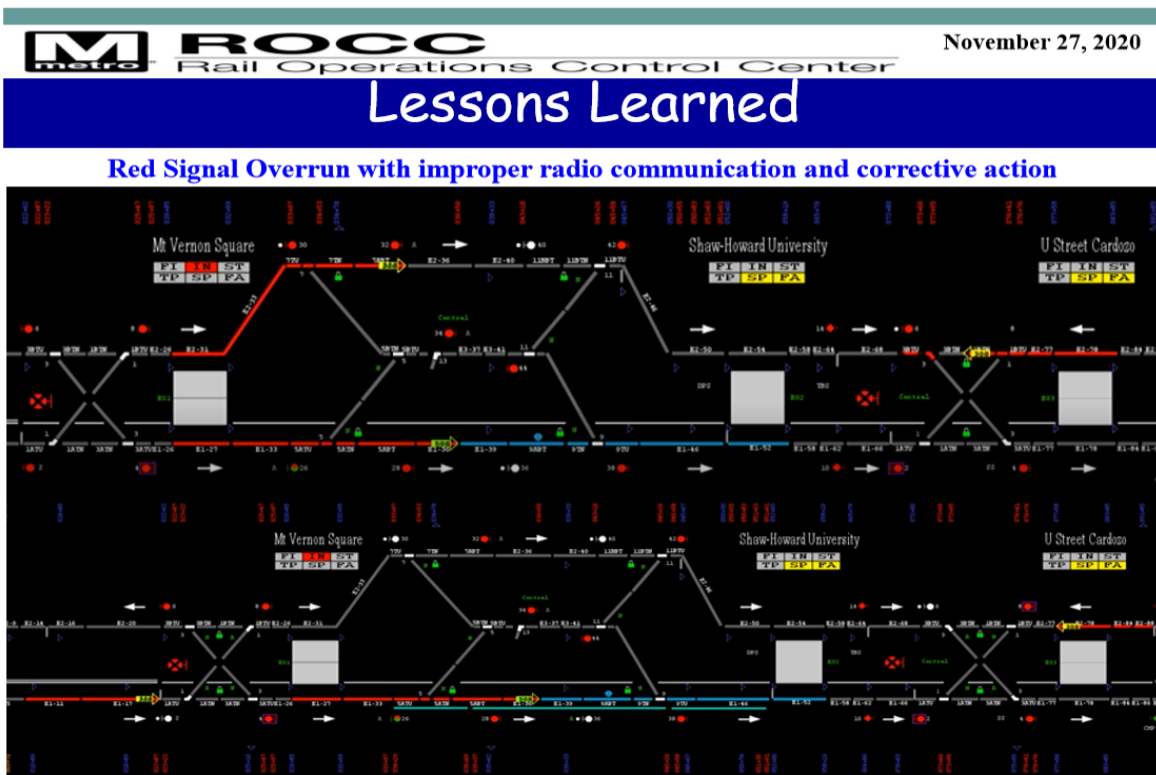
Rail Transportation (RTRA)

Train Operator

The Train Operator is a WMATA employee with one (1) year of experience as a Train Operator and (8) years of service in various positions as Bus Operator and Station Manager.

Based on the SAFE interview, the Train Operator stated that they were inbound in approach to U. Street Station as Train ID 308. The Train Operator reported that they observed E03-08 signal red and they their train lost speed commands in the middle of the platform. The Train Operator stated that they contacted the Radio RTC and requested to utilize "Stop and Proceed" method to properly berth their train. The Train Operator reported that after they performed a console sweep, they observed that they did not have speed commands and facing a red aspect; the Train Operator stated that they notified the Radio RTC that they were still standing by E03-08 signal red and still did not have speed commands. The Train Operator stated that the Radio RTC gave them a permissive block to the 8- car marker at Mt. Vernon Square track 2. The Train Operator stated that they moved their train and the Radio RTC came back over the radio instructing the Operator not to move their train, the Train Operator notified the RTC that their train already departed the platform. The Train Operator stated that the Radio RTC asked if the train had passed E03-08 signal red, the Train Operator confirmed that the train passed E03-08 signal red. The Train Operator reported that the Radio RTC initially instructed the Operator to reverse ends and bring Train ID 308 back to U. Street Station platform, the Train Operator then stated that the Radio RTC adjusted their instruction to the Train Operator and ascertained if there were any doors on the platform. The Train Operator reported that upon confirming that they had doors on the platform the Radio RTC instructed them to offload the train. The Train Operator stated that they did not recall the Radio RTC informing them that they were holding at E03-08 signal red due to single-track operations.

Appendix B – ROCC Lessons Learned



Red signal overrun with improper radio communication

Incident Analysis:

On Friday 27 November 2020 at 1243hrs, while single tracking between Mt. Vernon Sq. (E01) and U St. (E03) by way of track 2, due to a police investigation. There were duplicate ID's for train 308; one located at E01, one located at E03 and both trains were traveling on track 2 towards E01 simultaneously. The Radio RTC gave a permissive block to train 308 at E01 to the platform without identifying the location and track of the train. Train 308 located at E03 track 2 stated they were holding at a red signal. Train 308 track 2 at E03 moved passed a red signal towards E01. This improper radio communication contributed to a red signal overrun at E03 interlocking. Additional contributing factors were revealed when the Button RTC acknowledged that there were duplicate ID's and did not attempt to change or communicate this with the Radio RTC.

Corrective Action and Script

Button RTC- Identify and correct duplicate train ID's and communicate with the Radio RTC of the duplicate ID's.

Radio RTC- "Train 308 track 2 Mount Vernon Square you have a permissive block to the 8 car marker to properly berth your train, service the station, with speed commands you may continue. Over"

Train Operator- "Copy Central train 308 track 2 Mount Vernon Square has a permissive block to the 8 car marker to properly berth, service the station, and with speed commands I may continue. Over"

Radio RTC- "Central out"

MSRPH/SOPs

1.79 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, at all times, be repeated by the receiver so the transmitter can confirm the message was received completely and by the intended receiver. Whenever the transmitter has completed their transmission and is turning the airtime over to the receiving party for acknowledgement or reply, they are to end their communication with the word "over".

1.79.1 Positive Identification must be established prior to transmitting a message. Positive identification includes the transmitter stating their Train/Equipment Number or Unit ID Number, location, and track number at the beginning of a transmission and the receiver repeating back the Train/Equipment Number or Unit ID Number, location, and track number when acknowledging the radio call. Number or Unit ID Number, location, and track number when acknowledging the radio call.