

**WMSC Commissioner Brief: W-0274 – Improper Rail Vehicle Movement – Addison Road Station – June 24, 2023**

Prepared for Washington Metrorail Safety Commission meeting on May 14, 2024

Safety event summary:

A Train Operator moved Train 406 from Addison Road Station after being directed by a Rail Traffic Controller in the Rail Operations Control Center (ROCC) to hold at the station, and continued moving the train without required permission or protection from the Rail Traffic Controller after the train showed zero speed commands (stop). The Train Operator, without a required protective block, continued moving the train forward. When questioned by a Rail Traffic Controller, the Train Operator stated that they would move under a permissive block. This move was made without input from the Rail Traffic Controller. A Train Operator cannot know whether it is safe for such movement, and can only receive a protective block from a Rail Traffic Controller in order to provide the necessary protection against events such as collisions or derailments.

The Rail Traffic Controllers correctly identified the improper movement and instructed a Rail Supervisor to remove the Train Operator from service for post-event drug and alcohol testing as required by Metrorail policy.

Prior to the improper movement, the Rail Traffic Controller had attempted to contact the Train Operator as the train departed Capitol Heights Station to instruct the Train Operator to hold the train at Addison Road Station. This was a schedule adjustment due to congestion as Automatic Train Control Maintenance personnel addressed the loss of remote control of switches at the D&G Junction where the Blue, Orange, and Silver Lines meet east of Stadium-Armory Station. The Train Operator did not respond to this direction from the Rail Traffic Controller. During an investigative interview the Train Operator stated that radio transmissions were inaudible, and that many individuals attempted to communicate with the ROCC simultaneously. Due to the service disruption, there was an increased number of radio communications. The Rail Traffic Controllers had used the turnback feature in the Advanced Information Management system to remove speed commands beyond Addison Road Station. When the Train Operator moved the train forward from Addison Road Station, after not responding to the radio communication to hold at the station, the speed commands dropped to zero after the train had travelled 530 feet. Braking automatically applied. The train stopped 563 feet beyond the station as it reached the turnback location. The Rail Traffic Controllers did not know that this turnback¹ location would allow for speed commands to be displayed on the train when the train was at the platform with the speed commands only dropping to zero closer to the turnback sign.

After the train stopped with zero speed commands, the Train Operator improperly initiated Stop and Proceed mode without required permission or protection from the Rail Traffic Controller. The Train Operator improperly moved the train forward more than 400 feet toward Morgan Boulevard Station without speed commands and without permission or protection. Speed commands then returned. During these movements, the Train Operator did not respond to

¹ A simulated controlled wayside signal located at a turnback point, when approached in its "non-cleared" state used to initiate automatic turnback operation through an interlocking, by interrupting the speed commands which would otherwise be transmitted for the block. The simulated signal track location is marked by a turnback sign.



directions from the Rail Traffic Controller, and instead the Train Operator incorrectly stated that they had a permissive block. The Train Operator later responded to the Rail Traffic Controller that they did not move past the turnback without speed commands. Vehicle data showed that the train had been moved without speed commands.

Probable Cause:

The probable cause of this event was noncompliance with operational rules, procedures, and instructions.

Corrective Actions:

Metrorail provided refresher training to the Train Operator.

Examples of other related open CAPs

- CAP C-0181 addressing the finding that elements of Metrorail have a culture that accepts noncompliance with written operational rules, instructions, and manuals. (Expected completion date October 2024). Metrorail has revised its Safety Management System related to Rail Operations. This has included implementing new methods of hazard and risk reporting, training of personnel on reporting and implementation of a new data collection system for those issues so they can be properly evaluated and addressed. The WMSC is currently reviewing this CAP to ensure the deliverables and intended outcomes of this CAP have been met.



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

FINAL REPORT OF INVESTIGATION A&I E23430

Date of Event:	June 24, 2023
Type of Event:	Improper Rail Vehicle Movement
Incident Time:	14:40 hours
Location:	Addison Road Station, track 1
Time and How received by SAFE:	15:15 hours – SAFE/MAC
WMSC Notification Time:	15:36 hours
Responding Safety Officers:	WMATA: None WMSC: None Other: None
Rail Vehicle:	Train ID 406 L3044-3045, 3228-3229, 3261-3260T
Injuries:	None
Damage:	None
Emergency Responders:	None
SMS I/A Incident Number:	20230703#109646

Addition Road Station – Improper Rail Vehicle Movement

June 24, 2023

Table of Contents

Abbreviations and Acronyms	3
Executive Summary	4
Incident Site	4
Field Sketch/Schematics	5
Purpose and Scope	5
Investigative Methods	5
Investigation	6
Chronological Event Timeline	9
Office of the Chief Mechanical Officer, Incident Investigation Team (CMOR/IIT)	10
Office of Systems Maintenance, Office of Radio Communications (COMR)	12
Office of Rail Transportation (RTRA)	12
Interview Findings	13
Train Operator	13
Weather	13
Related Rules and Procedures	13
Metrorail Safety and Procedure Handbook (MSRPH)	13
Human Factors	13
Evidence of Fatigue	14
Post-Incident Toxicology Testing	14
Training and Work History	14
Findings	14
Immediate Mitigation to Prevent Recurrence	14
Probable Cause Statement	15
Recommended Corrective Actions	15
Appendices	16
Appendix A – Interview Summary	16
Appendix B – Train Operator’s Certificate	17
Appendix C – In-Service Evaluation Documents	19
Appendix D – Root Cause Analysis	24

Abbreviations and Acronyms

AIMS	Advanced Information Management System
AOM	Assistant Operations Manager
ARS	Audio Recording System
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CMNT	Office of Car Maintenance
CMOR	Office of Chief Mechanical Officer
COMR	Office of Radio Communications
IIT	Incident Investigation Team
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
OSI	Office of Safety Investigations
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
ROCC	Rail Operations Control Center
SAFE	Department of Safety
SMS	Safety Measurement System
SOP	Standard Operating Procedures
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 Saturday, June 24, 2023, at 14:38 hours, the Rail Operations Control Center (ROCC) Ops 2 Radio Rail Traffic Controller (RTC) instructed the Train Operator of Train ID 406 (L3044-3045, 3228-3229, 3261-3260T) to hold at Addison Road Station upon arrival, but the Train Operator did not respond to the transmission. At 14:40 hours, the Train Operator of Train ID 406 contacted the Radio RTC and reported that the train was departing Addison Road Station, track 1, and lost speed commands. The Radio RTC informed the Train Operator that the train was instructed to hold at Addison Road Station. The Train Operator advised that the train would continue with a permissive block to the 8-car marker at Morgan Boulevard Station.

The Radio RTC informed the Train Operator that a permissive block was not provided and inquired if the train was moving without speed commands. The Train Operator advised that the speed commands had returned. The Radio RTC informed the Train Operator that the train had moved from Addison Road Station without speed commands.

The Radio RTC instructed an Office of Rail Transportation (RTRA) Rail Supervisor to report to Downtown Largo Station. The ROCC Assistant Operations Manager (AOM) contacted the Button RTC and acknowledged the Improper Rail Vehicle Movement event.

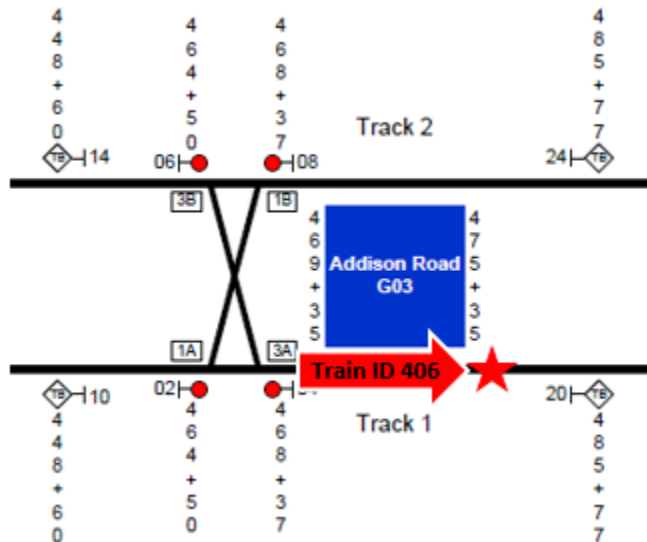
RTRA removed the Train Operator from service for post-incident testing. The train consist was removed from service for post-incident inspection.

The probable cause of the Improper Rail Vehicle Movement event on June 24, 2023, at Addison Road Station was that the Train Operator failed to follow established procedures for moving without speed commands. The Train Operator deviated from the requirement to contact the RTC for permission to move their train under an absolute or permissive block following a loss of speed commands.

Incident Site

Addison Road Station, track 1

Field Sketch/Schematics



The above depiction is not to scale.

Purpose and Scope

This investigation and candid self-evaluation aim 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 Improper Rail Vehicle Movement event at Addison Road Station on June 24, 2023, 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:

- Site assessment through video and document review
 - Formal Interviews – SAFE interviewed one individual 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 individual(s):
 - Train Operator (Train ID 406)
- 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 – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
 - Train Operator Training Records

- Train Operator Certifications
 - Train Operator 30-Day Work History
 - Metrorail Safety Rules and Procedures Handbook (MSRPH)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Rail Operations Control Center (ROCC) Incident Report
 - Maximo Data
 - Office of Chief Mechanical Officer (CMOR) / Incident Investigation Team (IIT) Post-Incident Analysis
 - RTRA Investigative Report
- System Data Recording Review – Collection of information in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback
 - System Performance On-Time Summary (Spots)
 - Advanced Information Management System (AIMS)
 - Closed-Circuit Television (CCTV)

Investigation

On Saturday, June 24, 2023, at 13:56 hours, ROCC was unable to set routes at the D&G Junction on track 2. At 14:02 hours, the Office of Automatic Train Control Maintenance (ATCM) personnel arrived, took over the control panel at the D&G Junction, and set the couplers to Medium Speed Restriction while performing maintenance duties.

Multiple trains were traveling towards Downtown Largo Station, and at 14:38 hours, the System Performance On-Time Summary (SPOTS) revealed that Train ID 406 (L3044-3045x3228-3229x3261-3260T) was departing Capitol Heights Station on track 1 when the Radio RTC attempted to contact the Train Operator.

Select Platform: and/or Select ID: 406 Leave blank to remove criteria
 and/or Select 4-digit car number: Leave blank to remove criteria
 Select Date: Jun 24 2023 Select Times (0-24HRS): From 14:00 To 15:00

Generate Report

ID	Platform	length	dcode	Right door open	Right door close	dwll	Left door open	Left door close	dwll	Head Arrived	Tail cleared	cars	Travel Time door open to door open
406	C06-1	6	72	14:02:21	14:02:45	24				14:01:56	14:03:06	3044-3045 3228-3229 3261-3260	-
406	C05-1	6	72				14:04:35	14:05:02	27	14:04:06	14:05:26	3044-3045 3228-3229 3261-3260	2:14
406	C04-1	6	72				14:07:38	14:08:00	22	14:07:07	14:08:24	3044-3045 3228-3229 3261-3260	3:03
406	C03-1	6	72	14:09:21	14:09:48	27				14:08:54	14:10:10	3044-3045 3228-3229 3261-3260	1:43
406	C02-1	6	72	14:10:56	14:11:21	25				14:10:27	14:11:41	3044-3045 3228-3229 3261-3260	1:35
406	C01-1	6	72				14:12:38	14:13:15	37	14:12:07	14:13:39	3044-3045 3228-3229 3261-3260	1:42
406	D01-1	6	72				14:14:17	14:14:38	21	14:13:47	14:15:04	3044-3045 3228-3229 3261-3260	1:39
406	D02-1	6	72	14:15:52	14:16:21	29				14:15:24	14:16:43	3044-3045 3228-3229 3261-3260	1:35
406	D03-1	6	72				14:17:40	14:18:09	29	14:17:08	14:18:33	3044-3045 3228-3229 3261-3260	1:48
406	D04-1	6	72				14:19:15	14:19:37	22	14:18:42	14:20:02	3044-3045 3228-3229 3261-3260	1:35
406	D05-1	6	72				14:21:04	14:21:27	23	14:20:31	14:21:49	3044-3045 3228-3229 3261-3260	1:49
406	D06-1	6	72				14:22:52	14:23:16	24	14:22:19	14:23:39	3044-3045 3228-3229 3261-3260	1:48
406	D07-1	6	72				14:24:53	14:25:20	27	14:24:15	14:25:44	3044-3045 3228-3229 3261-3260	2:01
406	D08-1	6	72				14:27:08	14:28:27	79	14:26:35	14:28:51	3044-3045 3228-3229 3261-3260	2:15
406	G01-1	6	72				14:34:53	14:35:14	21	14:34:19	14:35:38	3044-3045 3228-3229 3261-3260	7:45
406	G02-1	6	72				14:37:42	14:38:04	22	14:37:12	14:38:28	3044-3045 3228-3229 3261-3260	2:49
406	G03-1	6	72				14:39:58	14:40:20	22	14:39:30	14:40:46	3044-3045 3228-3229 3261-3260	2:16
406	G04-1	6	72				14:45:17	14:46:17	60	14:44:49	14:46:39	3044-3045 3228-3229 3261-3260	5:19

Table 1 – SPOTS Report depicting the movement of Train ID 406 between Capitol Heights Station and Addison Road Station.

The Audio Recording System (ARS) revealed that seconds later, the ROCC Radio RTC instructed Train ID 406 to hold at Addison Road Station upon arrival, but the Train Operator did not respond.

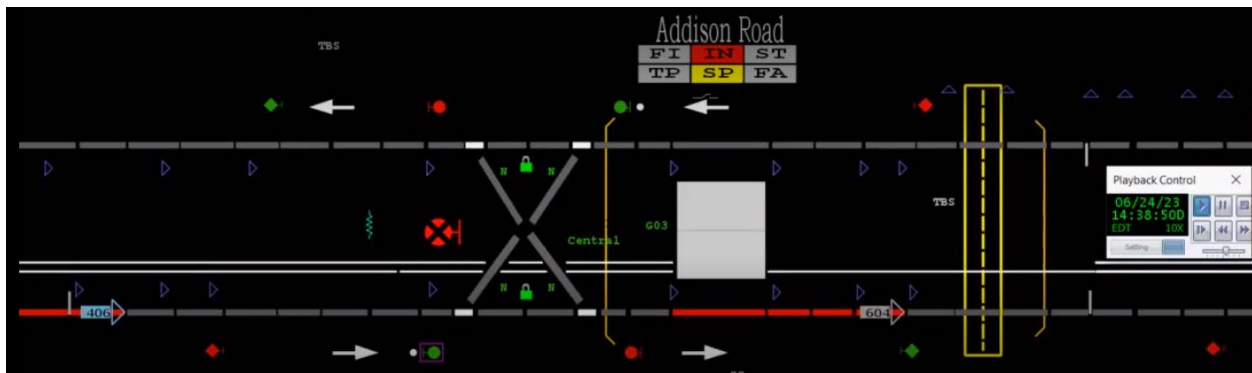


Figure 1 – Train ID 604 departing Addison Road Station as Train ID 406 is approaching Addison Road Station at 14:38 hours.

SPOTS revealed that at 14:39 hours, Train ID 406 arrived at Addison Road Station and departed at 14:40 hours.

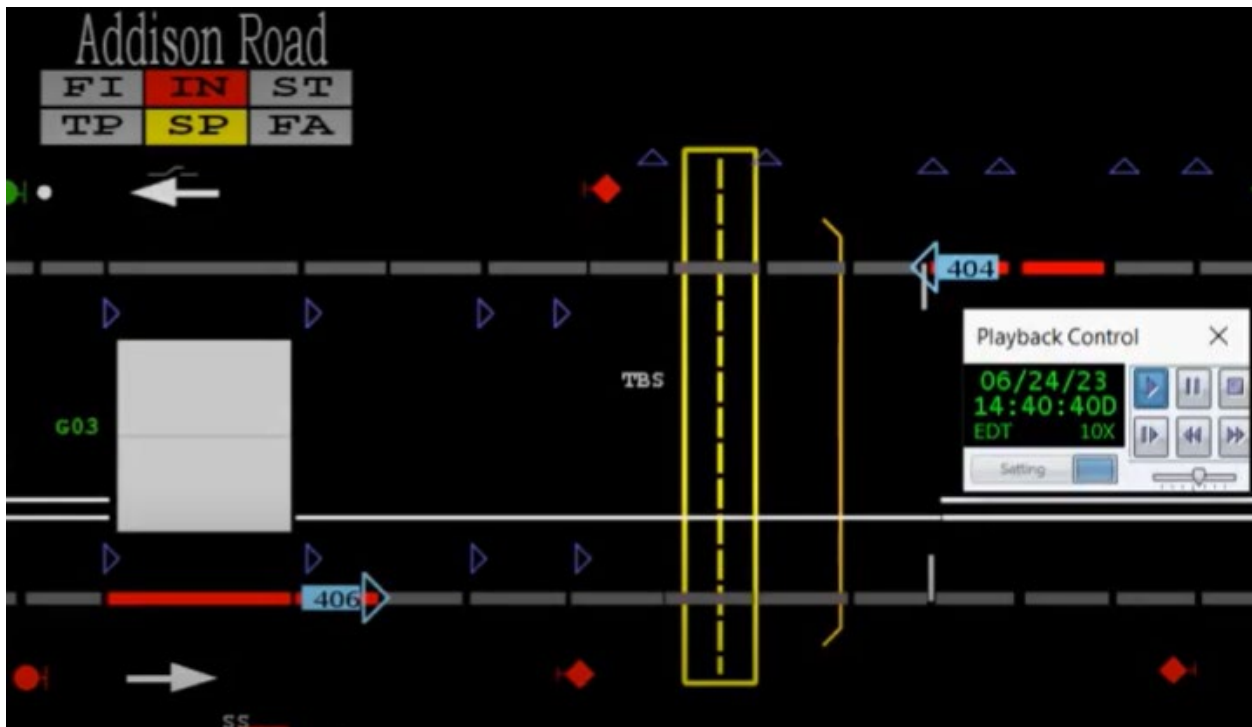


Figure 2 – Train ID 406 departing Addison Road Station at 14:40 hours.

Seconds later, the Train Operator contacted ROCC and reported that the train was departing Addison Road Station and lost speed commands. At 14:41 hours, the Radio RTC attempted to contact the Train Operator, but there was no response.

At 14:42 hours, the Train Operator stated, “Permissive block to Morgan Boulevard 8-car marker.” The Radio RTC responded, “Negative,” and requested the Train Operator to respond, but there was no response.

The Radio RTC again attempted to contact the Train Operator, who responded, “I have a permissive block.” The Radio RTC again attempted to contact the Train Operator, continued to inform the Train Operator that a permissive block was not given, and inquired if the train was moving without speed commands. The Train Operator responded that the speed commands had returned, and the train was not moving without speed commands. The Radio RTC informed the

Train Operator that they instructed them to hold at Addison Road Station; the train moved from Addison Road Station without speed commands, and when the train passed the turnback¹, the speed commands returned. The Train Operator responded that the train did not pass the turnback without speed commands, and they did not hear the instruction to hold.

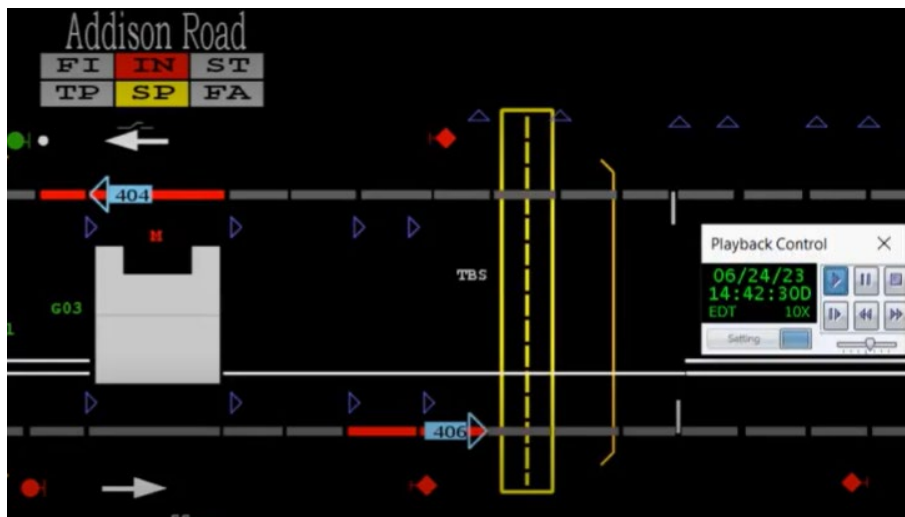


Figure 3 – Train ID 406 located at the turnback at 14:42 hours.

At 14:45 hours, the Button RTC contacted the Terminal Supervisor at Downtown Largo Station and instructed them to remove the Train Operator from service upon their arrival. The Radio RTC instructed the Rail Supervisor to respond to Downtown Largo Station.

The Office of the Chief Mechanical Officer, Incident Investigation Team (CMOR/IIT) provided an analysis of the train's data at the time of the event. The analysis revealed that at 14:33 hours, the train departed from Addison Road Station with speed commands toward Morgan Boulevard Station. After traveling 530 feet the speed commands dropped to 0 MPH, the Full-Service Brake Relay (FSBR) was de-energized, and the B4 master controller position was applied, bringing the train to a complete stop 563 feet after Addison Road Station.

The train's Stop and Proceed mode was initiated, the master controller was placed in the P2 position, and the train began to move without speed commands. The train stopped completely after traveling 33 feet (596 feet after departing Addison Road Station) using the Stop and Proceed mode. The train started to move again using the Stop and Proceed mode; after the train traveled an additional 445 feet (1,041 feet after departing Addison Road Station), speed commands were received toward Morgan Boulevard Station.

The train traveled a total of 478 feet using Stop and Proceed mode until speed commands were regained.

¹ A simulated controlled wayside signal located at a turnback point, when approached in its "non-cleared" state, is used to initiate automatic turnback operation through an interlocking by interrupting the speed commands which would otherwise be transmitted for the block. The simulated signal track location is marked by a turnback sign.

Chronological Event Timeline

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

Time	Description
13:56:36 hours	ROCC was unable to set routes at the D&G Junction on track 2. [Radio Ops 2]
14:02:59 hours	ATCM took over the control panel at the D&G Junction and set the couplers to Medium Speed Restriction. [Radio Ops 2]
14:37:12 hours	Train ID 406 arrived at Capitol Heights Station. [SPOTS]
14:38:28 hours	Train ID 406 departed Capitol Heights Station. [SPOTS]
14:38:45 hours	<u>ROCC Radio RTC</u> : Instructed Train ID 406 to hold at Addison Road Station upon arrival. <u>Train ID 406</u> : No response. [Radio Ops 2]
14:39:30 hours	Train ID 406 arrived at Addison Road Station. [SPOTS]
14:40:46 hours	Train ID 406 departed Addison Road Station. [SPOTS]
14:40:56 hours	<u>Train ID 406</u> : Contacted the RTC and advised that Train ID 406 was leaving Addison Road Station and lost speed commands. [Radio Ops 2]
14:41:47 hours	<u>ROCC Radio RTC</u> : Attempted to contact Train ID 406. <u>Train ID 406</u> : No response. [Radio Ops 2]
14:42:05 hours	<u>Train ID 406</u> : Stated “permissive block to Morgan Boulevard 8-car marker.” <u>ROCC Radio RTC</u> : Responded, “Negative.” Requested a response from Train ID 406. <u>Train ID 406</u> : No response. [Radio Ops 2]
14:42:22 hours	<u>ROCC Radio RTC</u> : Attempted to contact Train ID 406. <u>Train ID 406</u> : Responded, “I have the permissive block.” <u>ROCC Radio RTC</u> : Attempted to contact Train ID 406. Advised Train ID 406 that a permissive block was not given and inquired if the train was moving without speed commands. <u>Train ID 406</u> : Responded, the speed commands returned, and the train was not moving without speed commands. <u>ROCC Radio RTC</u> : Advised Train ID 406 that the speed commands would have returned when the train passed the turnback, then advised that ROCC attempted to make contact before the train arrived at Addison Road Station. Informed the train had moved without speed commands. <u>Train ID 406</u> : Responded that the train did not pass the turnback without speed commands, and they did not hear the instruction to hold. [Radio Ops 2]
14:45:13 hours	<u>ROCC Button RTC</u> : Instructed the Downtown Largo Terminal Supervisor to remove the Train Operator from service. [Phone Ops 2]
14:45:35 hours	<u>ROCC Radio RTC</u> : Instructed a Rail Supervisor to contact Downtown Largo Terminal. <u>Rail Supervisor</u> : Acknowledged and repeated. [Radio Ops 2]
14:45:40 hours	<u>OM</u> : Contacted the Button RTC, acknowledged the event, and instructed to request the AIMS playback for Train ID 406. [Phone Ops 2]

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

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

Adopted from the CMOR/IIT report with minor edits for formatting and grammar:

“CMOR/IIT analyzed data from train ID 406, cars (L3044-3045,3228-3229,3261-3260T) reported for Improper Rail Vehicle Movement.

Based on the Vehicle Monitoring System (VMS) data, Train ID 406, with lead car 3044, traveled outbound on track 1. At 14:32:44, the train stopped 12 feet short of Addison Road (G03) 8_Car marker. Left side doors were opened and closed to service the station.

At 14:33:15, the train departed from Addison Road station (G03) toward Morgan Boulevard (G04).

The speed commands dropped to 0 MPH. FSBR was de-energized, and the B4 rate was applied, bringing the train to a complete stop 563 feet after Addison Road Station. The train Stop and Proceed mode was initiated, the Master controller was placed in the “P2” position, and the train began to move without speed commands. The train stops completely after traveling 33 feet using Stop and Proceed mode.

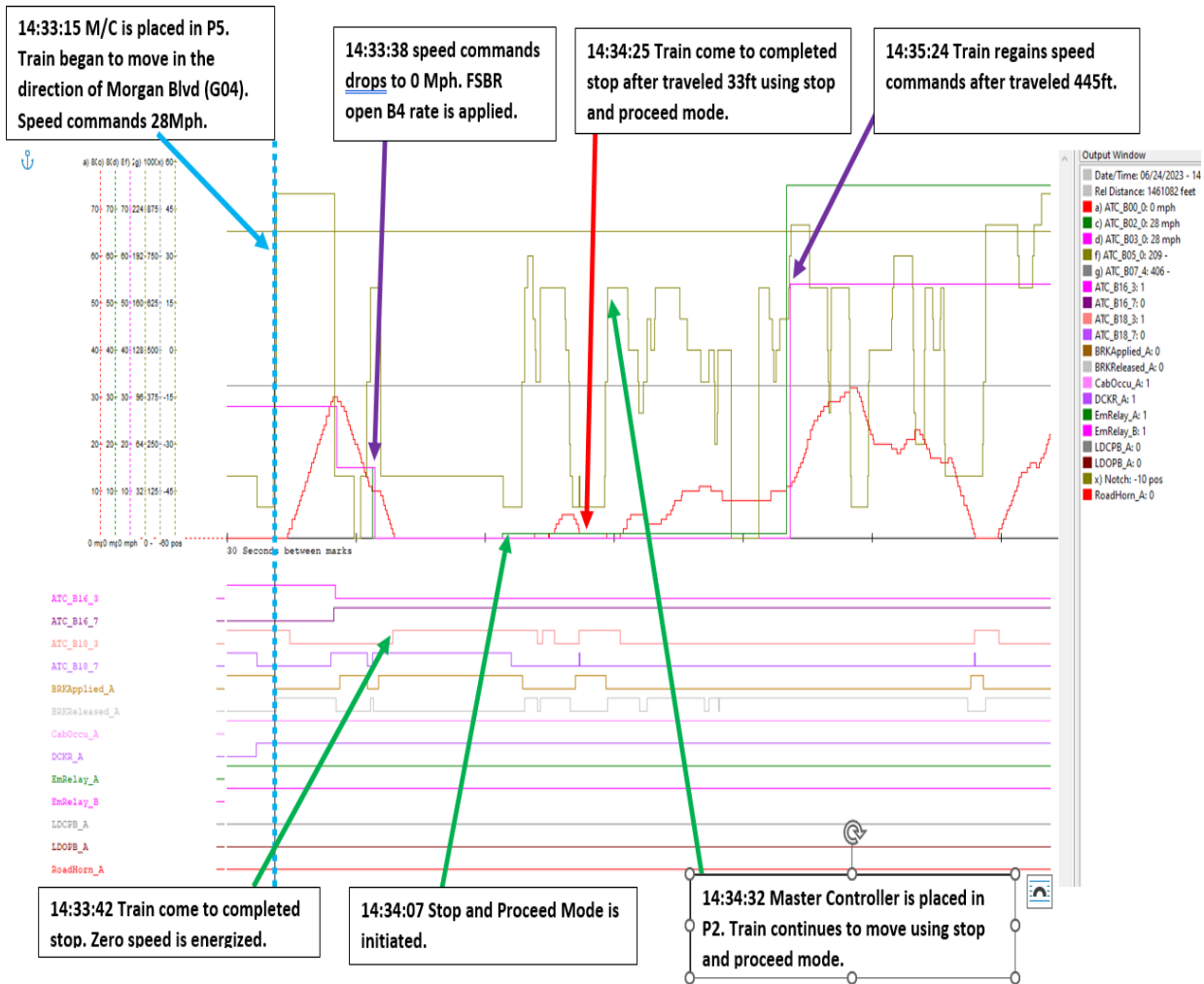
The train began to move again using Stop and Proceed mode; speed commands were received at 445 feet while moving toward Morgan Boulevard. Note: The train traveled 478 feet using stop and proceed mode until speed commands were regained.

Based on VMS data, no fault was found with the train that may have contributed to the cause of this incident.”

TIME	SEQUENCE OF EVENTS	MC Position	Actual Train Speed	Speed Regulated	Speed Limits	Distance from Addison Road 8 Car Marker.
14:32:44.14	Train ID 406 came to a complete stop 12 feet short from Addison Road 8-car marker Track #1.	B5	0 Mph	28 Mph	28 Mph	12 ft.
14:32:49	Left-side door open pushbutton activated, and left-side doors opened	B5	0 Mph	28 Mph	28 Mph	12 ft.
14:33:03	Left-side door close pushbutton activated and left-side doors initiate doors closed sequence.	B5	0 Mph	28 Mph	28 Mph	12 ft.
14:33:11	DCKR relay energized. All doors are closed and locked at this time.	B5	0 Mph	28 Mph	28 Mph	12 ft.
14:33:15	The Master Controller was placed in a P5 Power Position. And train began to move in the direction of Morgan Boulevard (G04).	P5	0 Mph	28 Mph	28 Mph	12 ft.
14:33:28	FSBR is de-energized. Overspeed condition is detected. Train exceeded limit speed.	P5	29 Mph	28 Mph	28 Mph	255 ft.
14:33:29	Speed Commands is reduced from 28 Mph to 15Mph. Overspeed condition continues.	B4	30 Mph	15 Mph	15 Mph	292 ft.

14:33:36	FSBR is energized. Overspeed condition is clear.	B1	13 Mph	15 Mph	15 Mph	505 ft.
14:33:37	Master Controller is move from B1 to P2.	P2	11 Mph	15 Mph	15 Mph	517 ft.
14:33:38	Speed Commands drops to 0 MPH , train speed is 10 MPH, 530 feet after departing Addison Road. FSBR is de-energized, B4 rate is applied.	P2	10 Mph	0 Mph	0 Mph	530 ft.
14:33:42	Train come to completed stop. Zero speed is energized. 563 feet after departing Addison Road.	B4	0 Mph	0 Mph	0 Mph	563 ft.
14:34:07	Stop and Proceed Mode was initiated.	B5	0 Mph	0 Mph	1 Mph	563 ft.
14:34:16	Master Controller is placed in P2. Train began to move under stop and proceed mode.	P2	Mph	0 Mph	1 Mph	563 ft.
14:34:21	Train reaches maximum speed of 5 Mph.	P2	5 Mph	0 Mph	1 Mph	576 ft.
14:34:25	Train come to completed stop. Zero speed is energized. 596 feet after departing Addison Road. Travel 33 ft using stop and proceed mode.	B5	0 Mph	0 Mph	1 Mph	596 ft
14:34:32	Master Controller is placed in P2. Train continues to move using stop and proceed mode.	P2	0 Mph	0 Mph	1 Mph	596 ft.
14:35:14	Train regains speed commands. After traveled 1041 ft from Addison Road. 478 feet using stop and proceed mode.	P3	11 Mph	54 Mph	75 Mph	1041 ft.
14:35:57	Train come to completed stop. 2301 feet after departing Addison Road.	B4	0 Mph	54 Mph	75 Mph	2301 ft.
14:36:02	Master Controller is placed in P4. Train began to move in the direction of Morgan Boulevard without stopping.	P4	0 Mph	54 Mph	75 Mph	2302 ft.
14:36:39	Limit speed is decreased to 65 Mph.	P4	49 Mph	54 Mph	65 Mph	3892 ft.
14:36:50	Limit speed is decreased to 55 Mph.	P4	53 Mph	54 Mph	55 Mph	4719 ft.
14:37:39	Train entered Morgan Boulevard platform limits.	B1	27 Mph	40 Mph	40 Mph	
14:38:02	Train comes to a complete stop at Morgan Boulevard 8-Car marker.	B5	0 Mph	40 Mph	40 Mph	

**Note: Times listed in VMS data are approximately six minutes behind other systems of record (SPOTS/AIMS)*



Graph 1 – 3044 VMS Graph

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

The Office of Radio Communications conducted comprehensive radio checks (TX/RX) at Addison Road Station on tracks one and two. No trouble was found.

Office of Rail Transportation (RTRA)

Adopted from RTRA Investigative Report:

RTRA determined that the Train Operator was in violation of the moving the train without speed commands and without the permission of ROCC. The Train Operator was cited a disciplinary action and written reprimand for the infraction.

Interview Findings

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

Train Operator

- The Train Operator stated that while leaving Addison Road Station en route to Morgan Boulevard Station, Train ID 406 experienced an issue with the speed commands.
- The Train Operator thought the RTC had provided them with a permissive block to proceed to Morgan Boulevard Station.
- They reported that radio transmissions were somewhat inaudible, and many individuals attempted to communicate with Central at the time, making it challenging to understand them.
- Train Operator assumed they could move and proceeded to their next destination.
- The RTC then contacted Train ID 406 and told them to stand by and that they did not have a permissive block to move forward.
- The Train Operator acknowledged that they did not follow the procedures and instructions from ROCC.

Weather

On June 24, 2023, at the time of the incident, NOAA recorded the temperature as 88° F, partly cloudy. The weather did not contribute to this incident (Weather source: NOAA – Location: Capitol Heights, MD).

Related Rules and Procedures

Metrorail Safety and Procedure Handbook (MSRPH)

Section 1 - General Rules, 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 acknowledgment or reply, they are to end their communication with the word “over.”

Section 3 – Operating Rules, 3.22 Mode 2 - Level 2 is the normal operating mode in yards. On the mainline, vehicles shall not be operated in Mode 2-Level 2 unless specifically authorized by ROCC to "operate in Mode 2 with zero speed commands", except as stated in 3.79. Operators shall move vehicles in either P1 or P2 while moving in the yards or with zero speed commands on the mainline unless directed otherwise by the Interlocking Operator in the yard or by ROCC while on the mainline

Section 3 – Operating Rules, 3.79 Train Operators shall not move trains with zero speed commands except after notifying ROCC or Terminal Supervisor and being given permission to move with zero speed commands and either a permissive block going with traffic or an absolute block going against traffic (see SOP #15)

Human Factors

Evidence of Fatigue

Conditions were evaluated at the time of the incident to distinguish whether evidence of fatigue was present. The Train Operator reported feeling fully alert at the time of the incident. The Train Operator reported experiencing any symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

The incident data was evaluated for fatigue risk factors for the Train Operator. Risk factors for fatigue were not present for the Train Operator. Since fatigue evidence and risk factors were absent, the biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Train Operator complied with and was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Training and Work History

The Train Operator has not had any safety violations within the last three years. The 30-Day work history did not reflect any indications of fatigue risk. The Train Operator holds a Roadway Worker Protection (RWP) Level 2 certification that expires in October 2023 and was certified as a Train Operator in March 2022.

Findings

- The event was preceded by a maintenance issue where ROCC was unable to set routes at the D&G Junction on track 2. ATCM arrived to troubleshoot the issue and implemented a Medium Speed Restriction in the area.
- There was heavy radio traffic due to the issue at the D&G Junction.
- Multiple trains were located at the stations leading to Downtown Largo Station causing the Radio RTC to instruct trains to hold at the stations.
- The Train Operator did not respond to the instruction to hold at Addison Road Station and the Radio RTC did not confirm that the Train Operator acknowledged their instruction to hold.
- The Train Operator initiated Stop and Proceed to move the train without speed commands.

Immediate Mitigation to Prevent Recurrence

- The Train Operator was removed from service.
- The incident train was removed from service for post-incident evaluation.

Probable Cause Statement

The probable cause of the Improper Rail Vehicle Movement event on June 24, 2023, at Addison Road Station was that the Train Operator failed to follow established procedures for moving without speed commands. The Train Operator deviated from the requirement to contact the RTC for permission to move their train under an absolute or permissive block following a loss of speed commands.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
109646_SAFE CAPS_RTRA_ 001	Train Operator to attend refresher training with an emphasis on MSRPH Section 3 Operating Rules – 3.22 through 3.30.	RTRA	Completed

Appendices

Appendix A – Interview Summary

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

Train Operator

The Train Operator is a WMATA employee with eight years of service, with one year of experience as a Train Operator. The Train Operator holds a Roadway Worker Protection (RWP) Level 2 certification that expires in October 2023 and was certified as a Train Operator in March 2022.

During the formal interview, the Train Operator stated they were operating Train ID 406 from Addison Road Station to Downtown Largo Station.

The Train Operator stated that while leaving Addison Road Station en route to Morgan Boulevard Station, Train ID 406 experienced an issue with the speed commands. Train Operator did not experience any issues or malfunctions before the event.

The Train Operator thought the RTC had provided them with a permissive block to proceed to Morgan Boulevard Station.

The Train Operator recalled that radio transmissions were inaudible, and many individuals attempted to communicate with Central simultaneously.

The Train Operator assumed they could move and proceeded to their next destination.

Central then contacted Train ID 406 and told them to stand by and that they did not have a permissive block to move forward.

The Train Operator acknowledged that they did not follow the procedures and misunderstood instructions from ROCC.

Appendix B – Train Operator’s Certificate



**TRAIN OPERATOR AND ROAD SUPERVISOR
JOB TASK PROFICIENCY EVALUATION**



Name: [Redacted] Emp.No: [Redacted] Division: TRAINING Date: 5/2/22

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
MSRPH version #:	92 %	
TVOIM/TOIM	97 %	
Supervisor Combination	%	
Practical attempt #: 1	QL- 1	5/2/22

Equipment (current/working condition)	Yes	No
MSRPH	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Perm/Temp/Special Orders	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Troubleshooting Guide	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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"/>
Id entification (One Badge, RWP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

Certification Information: *To be completed by QA/QC Staff*

[Redacted Signature Area] Date: 5/2/22
5/2/22

Reviewed by: _____

Document 1 – Train Operator’s Certificate, Page 1 of 2

Incident Date: 06/24/2023 Time: 14:40 hours
 Final Report – Improper Rail Vehicle Movement
 E23430

Drafted By: SAFE 711- 08/17/2023
 Reviewed By: SAFE 707 – 08/22/2023
 Approved By: SAFE 71 – 08/23/2023

Page 17

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION (continuation sheet)

Date: 5/2/22

Emp No. [Redacted]

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	2-1	Cars Used: 7448 7661 7492 7465
1. Exterior Inspection	1	
2. Interior Inspection - Trailing Cab	1	Barrus Rom Trucks
3. Interior Inspection - Each Car	1	ATC CTR A70 c/o
4. Interior Inspection - Oper. Cab	1	#4 Hard c/o
5. Rolling Test/Rolling Brake Test	1	App
		Time Allotted: 35:00 / Actual Time: :
II. Mainline Operation	2-	
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: 615 Time Allotted: 02:00 / Actual Time: 1:00
11. Manual Route Selection	1	Location: 615 C9832
12. EV Shutoff	1	Time Allotted: 00:30 (01:00) / Actual Time: :24
III. Yard Operation	2-1	
13. Communications	1	
14. Yard Movements	1	
15. Coupling	1	Time Allotted: 08:00 (12:00) / Actual Time: 6:45 Cars Used: 7661 + 7498
16. Uncoupling	1	Time Allotted: 05:00 (07:30) / Actual Time: 4:26 Cars Used: < 7661 > 7498
17. Isolation (Self-Recovery)	1	Time Allotted: 15:00 (22:30) / Actual Time: 149:32 Cars Used: 7448 7661 7492 7465
18. Manual Switch Operation	1	
IV. Miscellaneous	2-1	
19. Recovery Train Operation	1	Time Allotted: 12:00 (18:00) / Actual Time: 10:00 Cars Used: 7661 + 7492
20. Troubleshooting	1	
Emergency Mishap		
[Signature]		

Document 2 – Train Operator’s Certificate, Page 2 of 2

Incident Date: 06/24/2023 Time: 14:40 hours
 Final Report – Improper Rail Vehicle Movement
 E23430

Drafted By: SAFE 711- 08/17/2023
 Reviewed By: SAFE 707 – 08/22/2023
 Approved By: SAFE 71 – 08/23/2023

Appendix C – In-Service Evaluation Documents



TRAIN OPERATOR PERFORMANCE STANDARDIZATION
IN-SERVICE EVALUATION



Employee Name:	[Redacted]	Emp. No:	[Redacted]	Div:	Alexandria	Date:	12-21-22
Examiner:	[Redacted]	Emp. No:	[Redacted]	In-Service Evaluation Final Score:		97%	

Block No:		Train ID:	458	No. of Cars:	6
Boarding Loc:	New Carrollton	Track No:	2	Board Time:	5:01 PM
Alighting Loc:	L'Enfant Plaza	Track No:	2	Alight Time:	5:27 PM

1. Appearance and Work Equipment		Y	N	N/O
Appearance	Complete Regulation Uniform	1	0	1
	Nameplate	1	0	1
	Clean	1	0	1
	Neat	1	0	1
Work Equipment / PPE	MSRPH	1	0	1
	Perm/Temp Orders	1	0	1
	Troubleshooting Guide	1	0	1
	Flashlight	1	0	1
	Safety Vest	1	0	1
	Footwear	1	0	1
	Identification (WMATA, RWP, Certification Card)	1	0	1
	Watch	1	0	1
	Train Keys	1	0	1
	Handheld Radio	1	0	1
	Manifest / Run Card	1	0	1
Running Time Card and/or Driver Paddle	1	0	1	
SCORE:		13	0	3

2. ATO Operations	A	U	S	I	N	N/O
Allows train to make a normal ATO stop	4	0	0	0	0	4
Remain in seat until doors open (dwell begins)	4	3	2	1	0	4
Prepares to close train doors at the conclusion of dwell time	4	3	2	1	0	4
Places head out the platform side window and looks down the platform prior to closing doors	4	3	2	1	0	4
Returns to seat immediately after closing doors	4	3	2	1	0	4
SCORE:					0	20

LEGEND A = Always Y = Yes
 U = Usually N = No
 S = Sometimes N/O = Not Observed
 I = Infrequently ▲ = Test not scored
 N = Never

Failure to accomplish the items marked "▲" results in automatic failure of the exam. No score is awarded in these areas. When a deficiency is noted on one of these items, the exam will be terminated at that point, and no final score will be calculated. Appropriate violation reports will be submitted, and the operator will be re-examined within 30 days.

INSTRUCTIONS: 1. For each item in each category, circle or check the appropriate response.
 2. Add the marked figures in each column, and write the sum in the "SCORE" boxes at the bottom.
 3. Complete the Evaluation Scores section on Page 5.

Document 3 – Train Operator's Evaluation, Page 1 of 5

Incident Date: 06/24/2023 Time: 14:40 hours
 Final Report – Improper Rail Vehicle Movement
 E23430

Drafted By: SAFE 711- 08/17/2023
 Reviewed By: SAFE 707 – 08/22/2023
 Approved By: SAFE 71 – 08/23/2023

3. Manual Operations	A	U	S	I	N	N/O
Makes smooth stops	4	3	2	1	0	4
Enters platform @ 37-42 mph or 3 mph below Regulated speed	4	3	2	1	0	4
Berths train appropriately at the 8-Car Marker	▲	▲	▲	▲	▲	▲
Prepares to close train doors at the conclusion of dwell time	4	3	2	1	0	4
Does not exceed Regulated speed	4	3	2	1	0	4
Maintains speed no more than 3 mph below Regulated speed	4	3	2	1	0	4
Smooth acceleration and deceleration	4	3	2	1	0	4
Responds promptly to overspeed alarm	4	0	0	0	0	4
SCORE:	24				0	4

4. Door Operation	A	U	S	I	N	N/O
Initiates ATO Stop before opening doors manually (ATO & Auto/Manual Doors only)	4	0	0	0	0	4
Uses Train Berth when doors fail to open automatically (ATO & Auto/Manual Doors only)	4	0	0	0	0	4
Places head out the platform side window and inspects the platform prior to opening doors	▲	▲	▲	▲	▲	▲
Checks track ahead prior to closing doors	4	3	2	1	0	4
Places head out the platform side window and inspects the platform prior to closing doors	▲	▲	▲	▲	▲	▲
Head out of the window until Door Signal Lights are out	4	0	0	0	0	4
Recycles doors immediately when necessary (Door Open button/Door Close button)	4	0	0	0	0	4
SCORE:	8				0	12

5. Communication	A	U	S	I	N	N/O	
Announcements	Authorized	4	0	0	0	0	4
	Concise	4	3	2	1	0	4
	Clear	4	3	2	1	0	4
	No radio interference during announcements	4	3	2	1	0	4
	Professional	4	0	0	0	0	4
Announces ... <i>(outside of 7K train automated announcements)</i>	Each station when arriving	4	3	2	1	0	4
	Doors opening on the "platform" side (left or right)	4	3	2	1	0	4
	Destination and color with the doors open	4	3	2	1	0	4
	Jurisdictional boundaries	4	3	2	1	0	4
	Safety and Security announcements	4	3	2	1	0	4
	Next station is "___" announcement	4	3	2	1	0	4
Notifies customers appropriately when ...	Stopped between stations at required frequency	4	0	0	0	0	4
	Necessary to rebirth the train	4	0	0	0	0	4
	Elevator outages and shuttle information	4	0	0	0	0	4
	A line or train delay occurs	4	0	0	0	0	4
	Platform hazards are present	4	0	0	0	0	4
	Skipping stations	4	0	0	0	0	4



5. Communication (continued)		A	U	S	I	N	N/O
Radio Communications	Radio on proper channel	4	0	0	0	0	4
	Responds promptly to ROCC calls	4	0	0	0	0	4
	Verifies ROCC's instructions	4	0	0	0	0	4
	Gives ID and location to ROCC	4	0	0	0	0	4
	Request permission to move with zero speed commands	▲	▲	▲	▲	▲	▲
	Updates ROCC while troubleshooting	4	3	2	1	0	4
	Contacts Terminal Supervisor prior to entering terminal station from Mainline	4	0	0	0	0	4
	Responds promptly to Terminal Supervisor calls	4	0	0	0	0	4
SCORE:		52				0	44

6. General/Routine Operations		A	U	S	I	N	N/O
Monitors roadway and cab (SR0) signals at diverging routes		4	0	0	0	0	4
Sounds horn entering & exiting tunnels (except where restricted) and at other times as appropriate		4	3	2	1	0	4
Dims headlights approaching stations		4	3	2	1	0	4
Activates high beams when clear of stations		4	3	2	1	0	4
Dims headlights when approaching personnel on the roadway		4	3	2	1	0	4
Seeks proper acknowledgement (hand signals) from personnel on the roadway		▲	▲	▲	▲	▲	▲
Reports defects and minor malfunctions to ROCC or other appropriate authority		4	0	0	0	0	4
Notes car discrepancies on the proper form		4	0	0	0	0	4
Maintains assigned schedule		4	3	2	1	0	4
In the cab, keyed up, and ready to move two minutes prior to leaving time		4	0	0	0	0	4
Follows Switching Ends procedure		4	3	2	1	0	4
SCORE:		28				0	12

7. Non-Routine Operations		Y	N	N/O
Troubleshooting	Notifies ROCC within one minute of the malfunction	4	0	4
	Reports Prime Console Indications	4	0	4
	Recognizes trouble indication	4	0	4
	Checks circuit breaker panel (TCD Trouble Screen for 7K trains)	4	0	4
	Uses appropriate checklist	4	0	4
Turn Back moves at other than a terminal	Stops at the Turnback sign or within ten feet	4	0	4
	Checks for proper alignment	▲	▲	▲
	Obtains absolute block as required	▲	▲	▲
Singletracking operation	Verifies the area of single track	4	0	4
	Sounds train horn, when appropriate	4	0	4
	In possession of the appropriate Rail Service Adjustment Bulletin	4	0	4
	Operates Mode 2 Level 1	4	0	4
Non-revenue operation	Operates through stations at 25 mph or less	4	0	4
	Short horn blasts while operating through a station	4	0	4
	Interior car lights out	1	0	1
	Destination signs "No Passengers"	1	0	1
	Maintains authorized speed	4	0	4

7. Non-Routine Operations (continued)		Y	N	N/O
Manual route selection	Selects the correct route	▲	▲	▲
	Verifies track alignment	▲	▲	▲
EV Shutoff	Knowledgeable of the EV Shutoff procedure	4	0	④
SCORE:			0	58

8. Yard Operations		Y	N	N/O
Pre-revenue procedure	Notifies tower prior to pre-revenue inspection	4	0	④
	Performs exterior and interior inspections per the checklist	▲	▲	▲
	Notifies tower of discrepancies	▲	▲	▲
	Performs rolling test and rolling brake test	▲	▲	▲
	Notifies tower "Ready for Mainline"	4	0	④
	Maintains yard speed	▲	▲	▲
	Maintains switch speed	▲	▲	▲
	Stops at all grade crossing and sounds horn (where permissible)	▲	▲	▲
	Contacts ROCC prior to entering Mainline	4	0	④
Lay-up procedure	Notifies tower prior to entering yard	4	0	④
	Ensures no customers are aboard prior to entering yard	▲	▲	▲
	Report discrepancies	4	0	4
	Maintains yard speed	▲	▲	▲
	Maintains switch speed	▲	▲	▲
	Makes all safety stops	▲	▲	▲
	Notifies tower when secured	1	0	①
SCORE:			0	17

Corrective Actions Required		Date Due	Complete	Initials
Use the area below to recommend corrective action on areas, when observed, were rated either infrequently (I), Never (N), or No (N).				
Forwarded to:		Date:		

INSTRUCTIONS:
 1. Transfer the total scores in each category from the preceding pages to the corresponding blank lines below for each evaluation category.
 2. Sum each column below (including Not Observed or N/O), and enter the result on the blank lines below the solid line in the "Sum of Scores" area.
 3. Add the "Sum of Scores" figures together from the left to the right, and enter the result on the blank line after the "equals" sign.
 4. Subtract the sum of "Not Observed" column from 299 to get the "Maximum Possible Score This Inspection."
 5. Divide the total "Sum of Scores" by the "Maximum Possible This Inspection" and multiply the result by 100 to get the "Percent Score" for this inspection.
 6. Enter the "Percent Score" on the blank line after the "equals" sign at the bottom right, and in the "In-Service Evaluation Final Score" section of Page 1.

9. Evaluation Scores						
Evaluation Categories	A	U	S	Y I	N N	N/O
1. Appearance and Work Equipment	—	—	—	13	0	3
2. ATO Operations	—	—	—	—	0	20
3. Manual Operations	24	—	—	—	0	4
4. Door Operation	8	—	—	—	0	12
5. Communication	52	—	—	—	0	44
6. General	28	—	—	—	0	12
7. Non-Routine Operations	—	—	—	—	0	58
8. Yard Operations	—	—	—	—	0	17
Sum of Scores	112 + — + — + 13 + 0 = 125					170
Maximum Possible Score						↓ 299 ↓
Total Score Not Observed						↓ -170 ← ← ←
Maximum Possible Score this Inspection (maximum possible minus total not observed)						↓
Percent Score (total sum of scores divided by maximum possible this inspection)						125 / 129 x 100 = 97

Acknowledgement of Review			
Emp. Name:	[REDACTED]	Emp. Signature:	[REDACTED]
Examiner Name:	[REDACTED]	Examiner Signature:	[REDACTED]
		Date:	12-21-22

Appendix D – Root Cause Analysis

