



W-0359 – Improper Door Operation – Greenbelt Station – June 29, 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 January 28, 2025.

WMSC staff recommend adoption of this investigation.

Improper Door Operation

In 2024 there were 25 improper door operations safety events reported by Metrorail to the WMSC, an increase from the 16 events reported in 2023. Direct causes of improper door operations can include human factors (such as pressing a button to open doors on the wrong side or opening doors when the train is not on the platform) or mechanical defects. Investigations into other 2024 improper door events will be addressed in other reports.

Safety event summary:

A Train Operator who was operating a 10-car consist in passenger service, against Metrorail policy, operated the train from Greenbelt Rail Yard to Greenbelt Station and then continued in service to Branch Ave Station. Due to the length of the consist, two railcar doors opened outside the platform limits at each station stop. Each station platform throughout the Metrorail system has an 8-car maximum length capacity. An investigative review of Vehicle Monitoring System data showed that on the day prior to the event, an interlocking operator directed a yard operator to uncouple 4 cars from a 12-car consist, however only 2 cars were uncoupled, leaving a 10-car consist.

An investigative review of the Audio Recording System determined that the Train Operator had incorrectly confirmed to the Interlocking Operator at Greenbelt Rail Yard that their consist had eight cars before leaving the yard. The Console Display Unit located inside the operator's cab is only capable of displaying a maximum of 8 cars and therefore did not indicate that there were 10 cars in the consist. Metrorail policy requires train operators to perform pre-trip inspections before leaving the rail yard, which if conducted properly, would have alerted the Train Operator to the extra railcars. During an investigative interview, the Train Operator stated they did not conduct an external inspection of the train. Additionally, Metrorail policy requires terminal supervisors to confirm that the number of cars for each consist leaving the terminal matches the number of cars they dispatch out of the yard by counting them as the consist passes them in



the terminal where they are located. The Terminal Supervisor stated in an interview that they had not noticed the additional cars during their visual count.

The Train Operator did not identify that the improper door operation had occurred at Greenbelt Station and continued servicing stations to Branch Ave Station, where the Green Line ends. The doors on the additional two cars of the consist continued to open outside the platform limits at each station stop. The improper consist size was identified by the Terminal Supervisor at Branch Ave Station as they observed the extra cars fouling the interlocking. The Terminal Supervisor reported the consist size to the Control Center.

The train was removed from service for post-event inspection. The Train Operator and Greenbelt Terminal Supervisor were removed from service for post-event toxicology testing. The two extra cars were positioned off the platform at each station stop, prohibiting riders from boarding those railcars. Therefore, the railcars were unoccupied and there were no injuries as a result of this event.

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

- Non-compliance with written operational rules and procedures
- Lack of supervisory oversight to ensure compliance with written policies
- Lack of focus and situational awareness

As a result of these investigations, Metrorail implemented corrective actions including:

- Personnel received re-instruction training.
- Rail Operations Personnel Directive regarding documenting car numbers on manifest was reissued.



Washington Metropolitan Area Transit Authority
Department of Safety (SAFE)
Office of Safety Investigations (OSI)
FINAL REPORT OF INVESTIGATION A&I E24499

Date of Event:	June 29, 2024
Type of Event:	0-15: Improper Door Operation
Incident Time:	06:54 hours
Location:	Greenbelt Station
Time and How received by SAFE:	07:58 hours/ Safety Information Officer (SIO)
WMSC Notification Time:	08:32 hours
Responding Safety Officers:	WMATA: None WMSC: None Other: None
Rail Vehicle:	Train ID 502 (L6017/16X6070/71X6028/29X6062/63X6035/34T)
Injuries:	None
Damage:	None
Emergency Responders:	None
SMS I/A Number	20240629#118014MX

Greenbelt Station – Improper Door Operation

June 29, 2024

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
Automated Information Management System (AIMS)	11
Office of Systems Maintenance, Office of Radio Communications (COMR)	11
The Office of Chief Mechanical Officer, Incident Investigations Team (IIT)	11
ROCS SPOTS Report	14
Office of Rail Transportation (RTRA)	14
Interview Findings	15
Rail Vehicle Operator Train ID 502	15
Greenbelt Terminal Supervisor	15
Weather	15
Related Rules and Procedures	16
Human Factors	16
Evidence of Fatigue	16
Post-Incident Toxicology Testing	16
Findings	16
Immediate Mitigation to Prevent Recurrence	16
Probable Cause Statement	17
Recommended Corrective Actions	17
Appendices	18
Appendix A – Interview Summaries	18
Rail Vehicle Operator Train ID 502	18
Terminal Supervisor of Greenbelt Station	18
Appendix B – RTRA Documentation	20
Appendix X – Why-Tree Analysis	27

Abbreviations and Acronyms

ARS	Audio Recording System
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
COMR	Office of Radio Communications
CMOR	Office of Chief Mechanical Officer
IIT	Incident Investigations Team
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OM	Operations Manager
RPM	Rail Performance Monitor
RTRA	Office of Rail Transportation
RVO	Rail Vehicle Operator
SAFE	Department of Safety
SPOTS	System Performance On-Time Summary
SIO	Safety Information Officer
SMS	Safety Measurement System
VMS	Vehicle Monitoring 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 29, 2024, at 06:54 hours, Closed-Circuit Television (CCTV) observed the Rail Vehicle Operator (RVO) of Train ID 502 – L6017/16X6070/71X6028/29X6062/63X6035/34T operating a ten-car consist, located at Greenbelt Station on Track 1 with the platform side doors open to service the station. As a result, cars 9 and 10 (6035/34) doors opened outside the platform limits.

The Audio Recording System (ARS) determined that the RVO confirmed with the Greenbelt Yard Interlocking Operator that they were operating an eight-car consist at 06:52 hours, prior to departing at Greenbelt Yard.

The System Performance On-Time Summary (SPOTS) Report determined that Train ID 502 continued servicing the stations between Greenbelt and Branch Avenue Stations with the two additional cars as part of the consist.

At 07:52 hours, Train ID 502 arrived at Branch Avenue Station. As Train ID 502 approached the station, the Terminal Supervisor advised the Metro Integrated Command and Communications (MICC) Center Button Rail Traffic Controller (RTC) that the train was comprised of ten cars. The Button RTC instructed the Terminal Supervisor to remove the train from service.

At 07:53 hours, the Button RTC advised the Operations Manager (OM) of the event.

There were no injuries or damage as a result of this event.

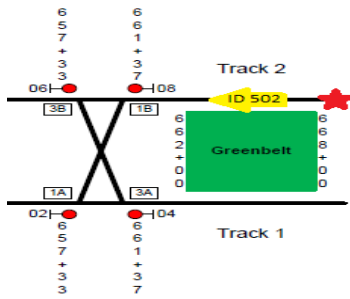
The Office of Rail Transportation (RTRA) removed the RVO from service for post-incident toxicology testing. The train consist was removed from service for post-incident inspection.

The probable cause of the Improper Door Operation event on June 29, 2024, at Greenbelt Station, was the rail vehicle operator's inattention and procedural error in failing to perform an exterior inspection of the train prior to departing the yard.

Incident Site

Greenbelt Station, Track 1

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:

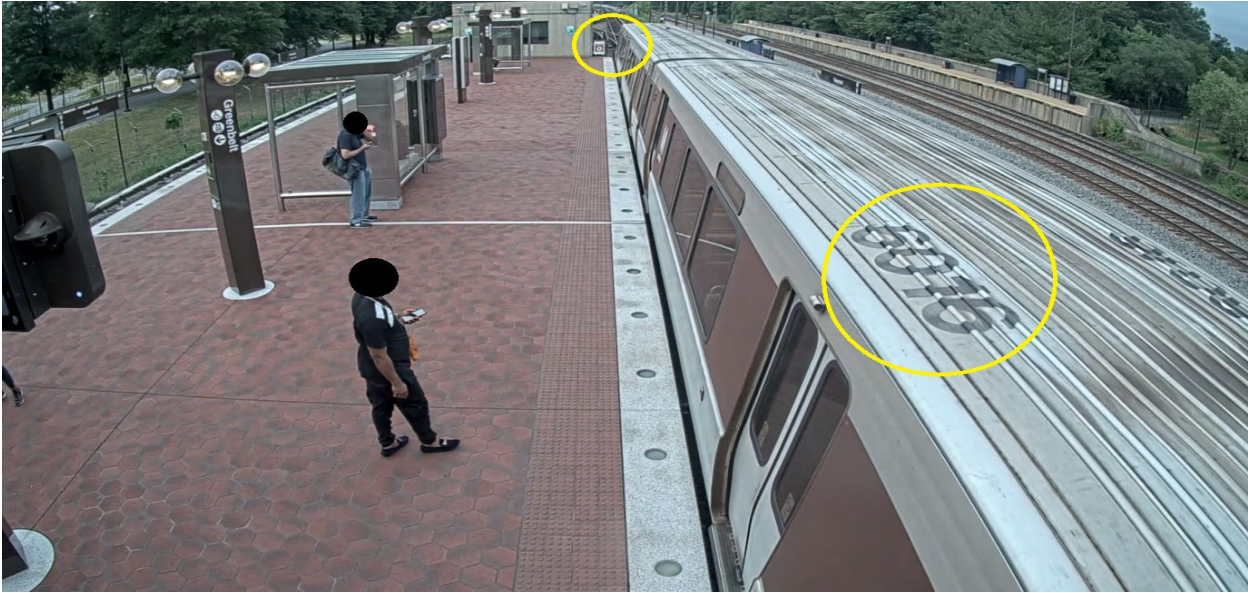
- Site Assessment through document review and video.
- Formal Interviews – SAFE interviewed (two) 2 individual(s) as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individual(s):
 - The Rail Vehicle Operator of Train ID 502
 - The Greenbelt Terminal Supervisor
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
 - CMOR-IIT Report
 - Maximo Report
 - Metrorail Operating Rulebook (MOR)
 - National Oceanic and Atmospheric Administration (NOAA)
 - RTRA Managerial Report
 - Rail Vehicle Operator's Written Statement
 - Rail Vehicle Operator's 30-Day Work History
 - Rail Vehicle Operator's Training Records
 - Terminal Supervisor's Written Statement
 - Terminal Supervisor's 30-Day Work History
 - Terminal Supervisor's Training Records
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
 - Advanced Information Management System (AIMS) Playback
 - Audio Recording System (ARS)
 - Vehicle Monitoring and Diagnostic System (VMDS)
 - Closed-Circuit television (CCTV)

- System Performance On-Time Summary Report
- Vehicle Monitoring System (VMS)

Investigation

On Saturday, June 29, 2024, at 06:52 hours, the RVO of Train ID 502 requested to enter the mainline from Greenbelt Yard from the Interlocking Operator. The RVO advised the Interlocking Operator that they were operating an eight-car consist.

At 06:54 hours, CCTV and SPOTS determined that Train ID 502 arrived at Greenbelt Station on track 2 with a ten-car consist.



Images 1 and 2 - Train ID 502 arrived at Greenbelt Station on Track 1 at approximately 06:54 hours with ten-cars.

At 06:55, the platform side doors on Train ID 502, including the two cars outside the platform limits, were observed opening.



Images 3 and 4 – The platform side doors of Train ID 502 open with two cars outside the platform limits at 06:55 hours.

The SPOTS Report determined Train ID 502 continued servicing all stations between Greenbelt Station and Branch Avenue Station with ten cars as part of the consist.

At 07:52 hours, Train ID 502 arrived at Branch Avenue Station. As Train ID 502 approached the station, the Branch Avenue Terminal Supervisor, noticed the additional two (2) cars outside of the platform limits fouling the interlocking. The Branch Avenue Terminal Supervisor advised the Button RTC that Train ID 502 was comprised of ten cars. The Button RTC instructed the Terminal Supervisor to remove Train ID 502 from service.



Images 5 and 6 - Train ID 502 located at Branch Avenue Station at 07:52 hours.

At 07:53 hours, the Button RTC informed the Operations Manager (OM) of the incident. At 07:56 hours, the Radio RTC instructed an RTRA Supervisor to report to Branch Avenue Station and to assist in removing the RVO from service.



Image 7 – The Console Display Unit (CDU) shows a maximum number of 8 cars, although 10 cars were coupled together.

Chronological Event Timeline

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

Time	Description
16:04:29 hours	<u>IO</u> : Gave the Yard Operator an absolute block to track 2, make an add with barriers. Walk through and uncouple the last four cars leaving 8-cars on the open end. <u>Yard Operator</u> : Acknowledged transmission. [Radio, GBYD2]
16:17:12 hours	<u>On 6/28/2024</u> : Four cars (6017/6016X6070X6071) were added to eight cars consist (6028-6029X6062-6063X6035-6034X6181-6180) and made up 12 cars consist (6017-6016X6070-6071X6028-6029X6062-6063X6035-6034X6181-6180). [VMS]
16:18:13 hours	<u>On 6/28/2024</u> : The uncouple switch was activated on car 6034 and the Rotary Switch moved to an uncoupled position indicating that cars 6181/6180 have been cut from the 12 cars consist. [VMS]
06/29/2024	
06:52:29 hours	<u>Rail Vehicle Operator of Train ID 502</u> : Requested permission to enter the mainline from Greenbelt Yard from the Interlocking Operator, with an eight-car consist. <u>Greenbelt Interlocking Operator</u> : Acknowledged and granted permission to move. [Radio, GBYD]
06:29:52 hours	Train ID 502 departed Greenbelt Yard with 10 cars consist, the Rotary Switch signal on car 6035 remained low indicating car 6035 was coupled to car 6063 and remained coupled to the consist (6017-6016X6070-6071X6028-6029X6062-6063X6035-6034) throughout the run
06:54:48 hours	Train ID 502 arrived at Greenbelt Station, track 2. [CCTV]
06:55:00 hours	The platform side doors opened on Train ID 502 at Greenbelt Station, track 2 [CCTV]
07:02:31 hours	Train ID 502 arrived at College Park Station, track 2. [SPOTS]

07:02:58 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at College Park Station, track 2. [SPOTS]
07:05:48 hours	Train ID 502 arrived at Hyattsville Crossing Station, track 2. [SPOTS]
07:06:14 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Hyattsville Crossing Station, track 2. [SPOTS]
07:08:13 hours	Train ID 502 arrived at West Hyattsville Station, track 2. [SPOTS]
07:08:37 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at West Hyattsville Station, track 2. [SPOTS]
07:11:06 hours	Train ID 502 arrived at Fort Totten Station, track 2. [SPOTS]
07:11:32 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Fort Totten Station, track 2. [SPOTS]
07:13:48 hours	Train ID 502 arrived at Georgia Avenue Station, track 2. [SPOTS]
07:14:14 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Georgia Avenue Station, track 2. [SPOTS]
07:15:53 hours	Train ID 502 arrived at Columbia Heights Station, track 2. [SPOTS]
07:16:24 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Columbia Heights Station, track 2. [SPOTS]
07:18:06 hours	Train ID 502 arrived at U Street Station, track 2. [SPOTS]
07:18:41 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at U Street Station, track 2. [SPOTS]
07:19:49 hours	Train ID 502 arrived at Shaw-Howard Station, track 2. [SPOTS]
07:20:50 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Shaw-Howard Station, track 2. [SPOTS]
07:21:17 hours	Train ID 502 arrived at Mount Vernon Square Station, track 2. [SPOTS]
07:21:45 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Mount Vernon Square Station, track 2. [SPOTS]
07:24:45 hours	Train ID 502 arrived at Archives Station, track 2. [SPOTS]
07:25:14 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Archives Station, track 2. [SPOTS]
07:26:19 hours	Train ID 502 arrived at L'Enfant Plaza Station, track 2. [SPOTS]
07:26:49 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at L'Enfant Plaza Station, track 2. [SPOTS]
07:28:28 hours	Train ID 502 arrived at Waterfront Station, track 2. [SPOTS]
07:28:57 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Waterfront Station, track 2. [SPOTS]
07:30:09 hours	Train ID 502 arrived at Navy Yard Station, track 2. [SPOTS]
07:30:38 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Navy Yard Station, track 2. [SPOTS]
07:32:38 hours	Train ID 502 arrived at Anacostia Station, track 2. [SPOTS]
07:33:24 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Anacostia Station, track 2. [SPOTS]
07:35:32 hours	Train ID 502 arrived at Congress Heights Station, track 2. [SPOTS]
07:36:02 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Congress Heights Station, track 2. [SPOTS]
07:38:01 hours	Train ID 502 arrived at Southern Avenue Station, track 2. [SPOTS]
07:38:34 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Southern Avenue Station, track 2. [SPOTS]

07:40:51 hours	Train ID 502 arrived at Naylor Road Station, track 2. [SPOTS]
07:43:06 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Naylor Road Station, track 2. [SPOTS]
07:47:08 hours	Train ID 502 arrived at Suitland Station, track 2. [SPOTS]
07:47:39 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Suitland Station, track 2. [SPOTS]
07:51:33 hours	Train ID 502 arrived at Branch Avenue Station, track 2. [SPOTS]
07:52:17 hours	Train ID 502 platform side doors opened, including the two cars that were outside of the platform limits at Branch Avenue Station, track 2. [SPOTS]
07:52:28 hours	<u>Branch Avenue Terminal Supervisor</u> : Advised the <u>Button RTC</u> that Train 502 consisted of ten cars. <u>Button RTC</u> : Acknowledged and advised the Terminal Supervisor to remove the train from service. [Phone, Branch Ave Blockhouse]
07:53:41 hours	<u>Button RTC</u> : Advised the OM that Train 502 consisted of ten cars. <u>Operations Manager</u> : Acknowledged. [Phone, Rail 1]
07:56:13 hours	<u>Radio RTC</u> : Instructed an RTRA Supervisor to respond to Branch Avenue Station and to remove the Train Operator from service. <u>RTRA Supervisor</u> : Acknowledged. [Radio, OPS 3]

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

Automated Information Management System (AIMS)

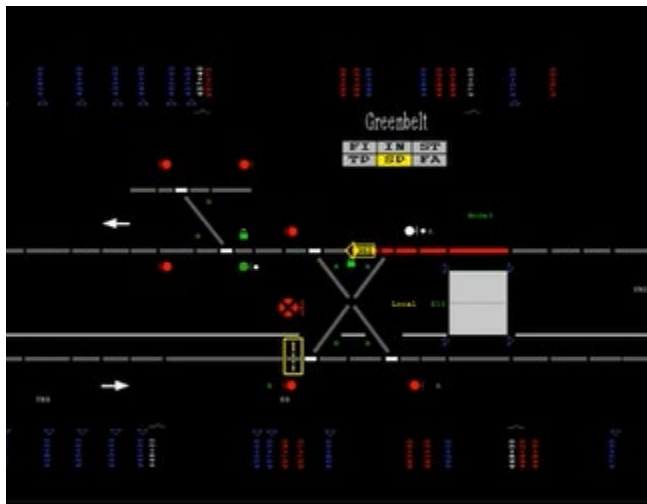


Figure 1 – AIMS depicting Train ID 502 located at Greenbelt Station at 06:54 hours.

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

No communication issues were identified during the course of this incident.

The Office of Chief Mechanical Officer, Incident Investigations Team (IIT)

IIT has completed an analysis of data retrieved from the train ID 502 (L6017/16,6070/71,6028/29,6062/63, 6035/34T).

Based on VMS data and the RPM Car reports, Train ID 502 was running in service with 10 cars in the consist, and doors were opened on trailing cars 6035/6034 outside of the platform limits

Incident Date: June 29, 2024 Time: 06:54 hours
Final Report – Improper Door Operation- Rev 1.
E24499

Drafted By: SAFE 702 – 08/05/2024
Reviewed By: SAFE 707 – 09/03/2024
Approved By: SAFE 707 – 09/03/2024

each time doors were commanded to open to service stations between Greenbelt Station to Branch Ave Station.

The consist was made into a ten-car consist at E99-Greenbelt Yard on 06/28/2024 at 16:23:58.7 and departed the yard for the revenue service as ten-car consist on 06/29/2024 at 06:52:59.

The sequence of cars coupling/ Uncoupling at Greenbelt Yard, based on VMS data time:

- 06/28/2024 at 16:17:17.2, four cars (6017/6016X6070X6071) were added to eight cars consist (6028-6029X6062-6063X6035-6034X6181-6180) and made up 12 cars consist (6017-6016X6070-6071X6028-6029X6062-6063X6035-6034X6181-6180).
- 06/28/2024 at 16:18:13.4, the uncouple switch was activated on car 6034 and Rotary Switch moved to an uncoupled position indicating that cars 6181/6180 have been cut from the 12 cars consist.
- 06/29/2024 at 06:52:59, Train ID 502 departed Greenbelt Yard with 10 cars consist, the Rotary Switch signal on car 6035 remained low indicating car 6035 was coupled to car 6063 and remained coupled to the consist (6017-6016X6070-6071X6028-6029X6062-6063X6035-6034) throughout the run.

Lead Car 6017 VMS Graph:

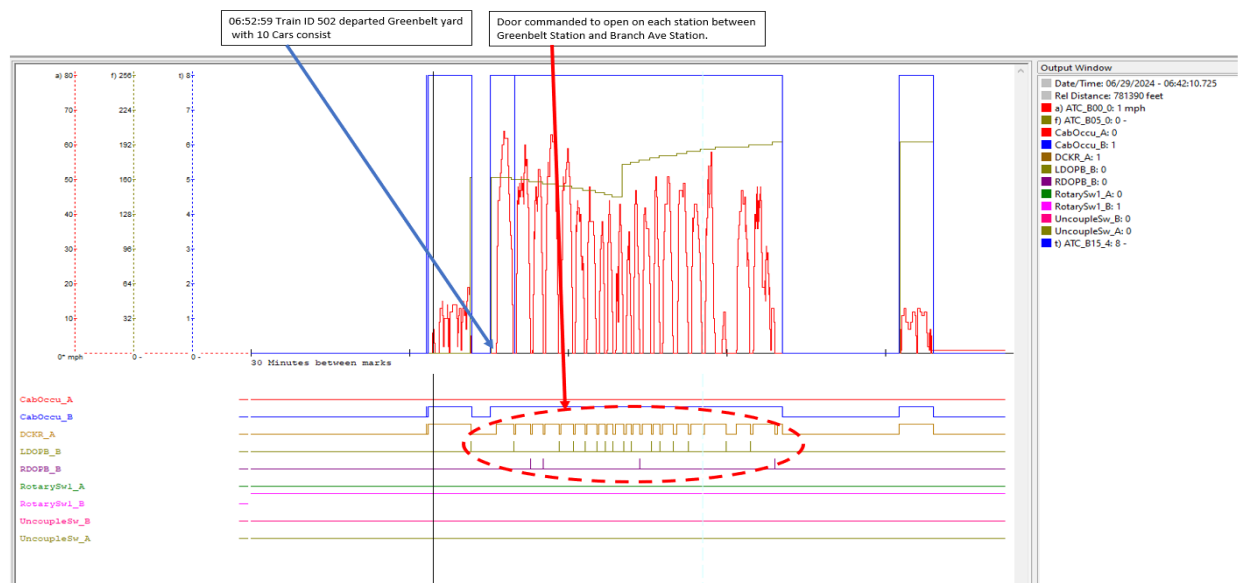


Figure 2 – VMS Graph of Car 6017.

Car 6034/6035 VMS Graph:

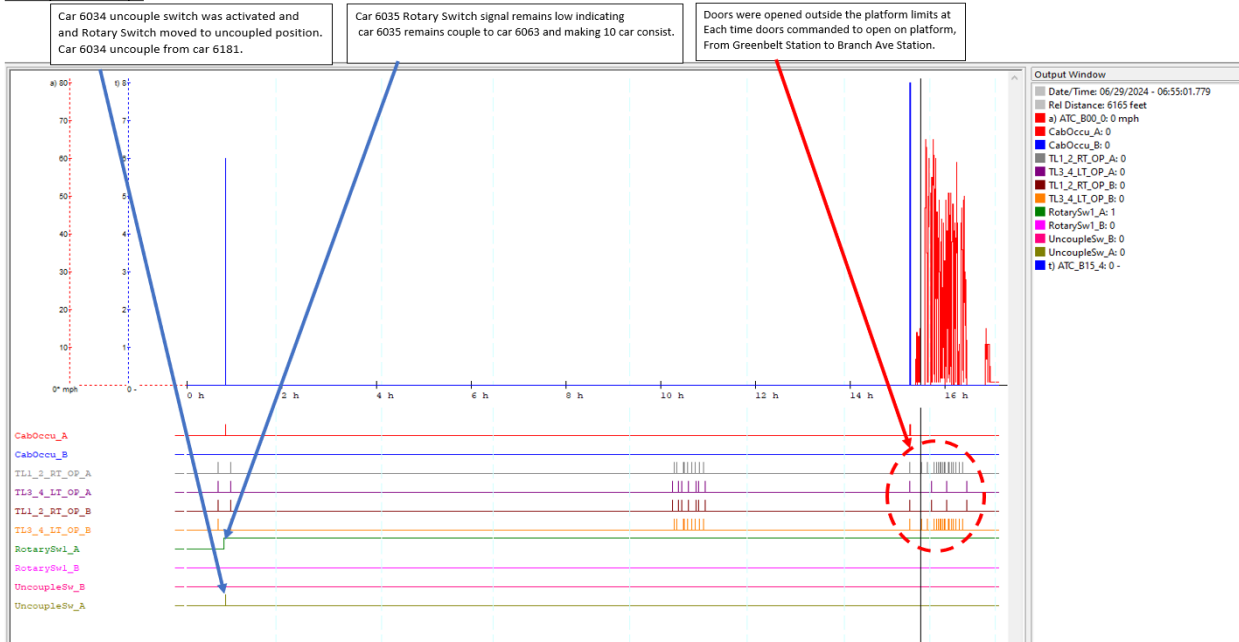


Figure 3 – VMS Graph of Car 6034

Car 6070/6071 VMS Graph:

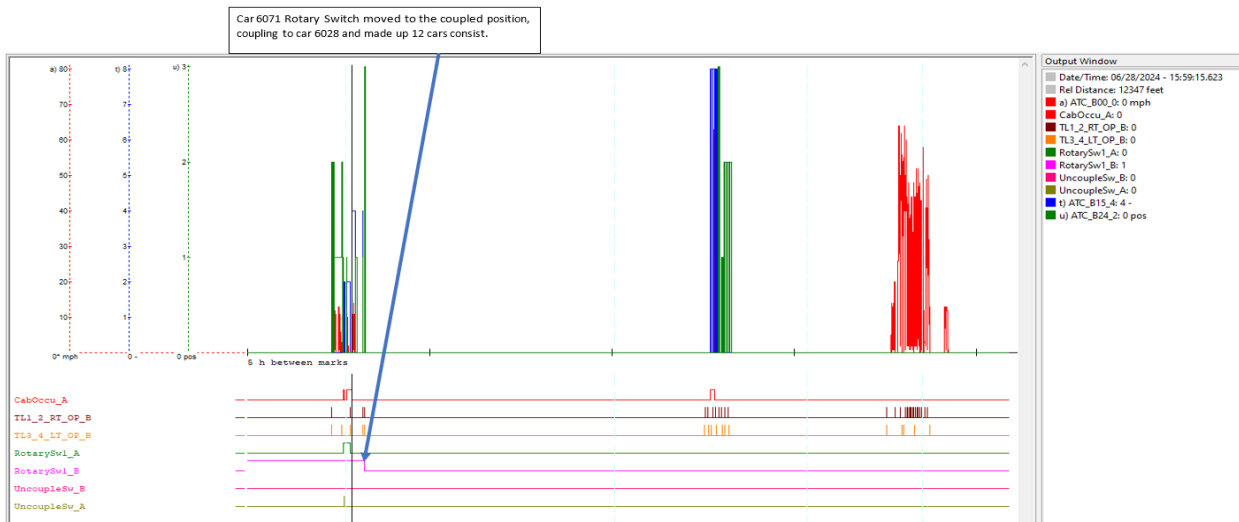


Figure 4 – VMS Graph of Car 6070.

Figure 5 – VMS Graph of Car 6028.

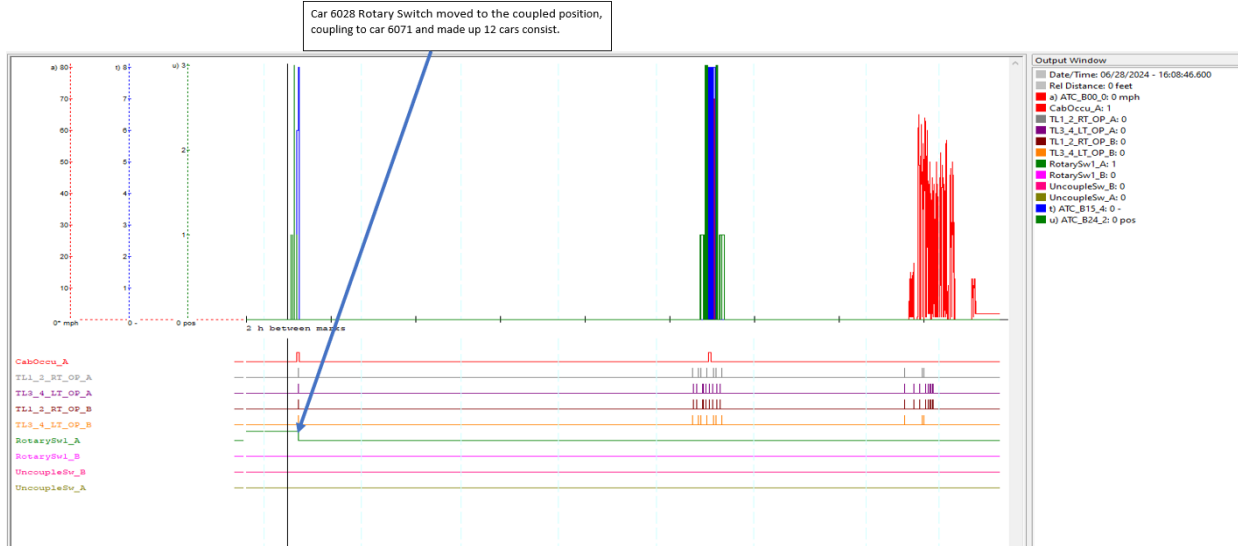


Figure 5 – VMS Graph of Car 6028.

ROCS SPOTS Report

ROCS SPOTS REPORT

based on up-to-the-second operational performance data from the Rail Operations Control System

Current date/time: Mon Jul 1 07:55:36 2024

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: Jun 29 2024 Select Times (0-24HRS): From 06:00 To 08:00

Generate Report

ID	Platform	length	dcode	Right door open	Right door close	dwel	Left door open	Left door close	dwel	Head Arrived	Tail cleared	cars	Headway door open to door open
502	E09-2	0	43				07:02:58	07:03:22	24	07:02:31	07:03:46	6017-6016.6070-6071.6028-6029.6062-6063	-
502	E08-2	8	43	07:06:14	07:06:30	16				07:05:48	07:07:00	6017-6016.6070-6071.6028-6029.6062-6063	3:16
502	E07-2	8	43	07:08:38	07:08:53	15				07:08:12	07:09:19	6017-6016.6070-6071.6028-6029.6062-6063	2:24
502	E06-2	8	43				07:11:33	07:11:53	20	07:11:05	07:12:18	6017-6016.6070-6071.6028-6029.6062-6063	2:55
502	E05-2	8	43				07:14:14	07:14:30	16	07:13:48	07:14:55	6017-6016.6070-6071.6028-6029.6062-6063	2:41
502	E04-2	8	43				07:16:24	07:16:45	21	07:15:54	07:17:09	6017-6016.6070-6071.6028-6029.6062-6063	2:10
502	E03-2	8	43				07:18:41	07:19:03	22	07:18:07	07:19:29	6017-6016.6070-6071.6028-6029.6062-6063	2:17
502	E02-2	8	43				07:20:15	07:20:32	17	07:19:49	07:20:59	6017-6016.6070-6071.6028-6029.6062-6063	1:34
502	E01-2	8	43				07:21:46	07:22:06	20	07:21:17	07:22:46	6017-6016.6070-6071.6028-6029.6062-6063	1:31
502	F01-2	8	43							07:23:15	07:24:36	6017-6016.6070-6071.6028-6029.6062-6063	-
502	F02-2	8	43				07:25:14	07:25:31	17	07:24:45	07:25:55	6017-6016.6070-6071.6028-6029.6062-6063	3:28
502	F03-2	8	43	07:26:49	07:27:10	21				07:26:19	07:27:40	6017-6016.6070-6071.6028-6029.6062-6063	1:35
502	F04-2	8	43				07:28:57	07:29:16	19	07:28:28	07:29:41	6017-6016.6070-6071.6028-6029.6062-6063	2:08
502	F05-2	8	43				07:30:39	07:30:57	18	07:30:09	07:31:26	6017-6016.6070-6071.6028-6029.6062-6063	1:42
562	F06-2	8	43				07:33:24	07:33:45	21	07:32:38	07:34:11	6017-6016.6070-6071.6028-6029.6062-6063	2:45
502	F07-2	8	43				07:36:02	07:36:22	20	07:35:31	07:36:50	6017-6016.6070-6071.6028-6029.6062-6063	2:38
502	F08-2	8	43				07:38:34	07:38:56	22	07:38:00	07:39:26	6017-6016.6070-6071.6028-6029.6062-6063	2:32
502	F09-2	8	43				07:43:06	07:44:56	110	07:40:52	07:45:23	6017-6016.6070-6071.6028-6029.6062-6063	4:32
502	F10-2	8	43							07:46:48	07:46:49	6063-6062.6029-6028.6071-6070.6016-6017	-
502	F10-2	8	43							07:47:02	07:47:04	6017-6016.6070-6071.6028-6029.6062-6063	-
502	F10-2	8	43				07:47:39	07:48:05	26	07:47:08	07:48:31	6017-6016.6070-6071.6028-6029.6062-6063	4:33
	F11-1	8	0	07:52:17	07:52:40	23				07:51:33	08:16:44	6017-6016.6070-6071.6028-6029.6062-6063	4:38

Table 1 – SPOTS Report of Car 6017 between 06:00 hours and 08:00 hours. The initial stop at Greenbelt Station was not shown.

Office of Rail Transportation (RTRA)

Adopted from RTRA report:

Incident Date: June 29, 2024 Time: 06:54 hours
 Final Report – Improper Door Operation- Rev 1.
 E24499

Drafted By: SAFE 702 – 08/05/2024
 Reviewed By: SAFE 707 – 09/03/2024
 Approved By: SAFE 707 – 09/03/2024

Interview Findings

As part of the investigation launched into the event, SAFE interviewed 2 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 Train ID 502

- The Rail Vehicle Operator stated they were on duty at 06:11 hours and had received their manifest. The Train Operator stated they had observed their consist on track 2 of the Greenbelt Yard and proceeded to conduct an internal inspection of the consist.
- The Rail Vehicle Operator stated they did not conduct an external inspection or ground walk-around, even though they were advised that this was required prior to taking the train out.
- The Rail Vehicle Operator stated they observed the CDU display the total cars in the consist as “eight,” but were also aware that the CDU would not display any more than eight cars if additional cars were present.
- The Rail Vehicle Operator stated they were not advised by the Greenbelt Interlocking Operator that the consist comprised of ten cars.
- The Rail Vehicle Operator stated they left towards Greenbelt Station and commenced their run there. The Train Operator stated the Greenbelt Terminal Supervisor did not advise that they were operating a ten-car consist.
- The Rail Vehicle Operator stated they were advised by the Branch Avenue Terminal Supervisor at Branch Avenue Station that they had been operating a ten-car consist, at the end of their run.

Greenbelt Terminal Supervisor

- The Terminal Supervisor stated prior to the incident, they were required to coordinate train movement out of Greenbelt Terminal.
- The Terminal Supervisor stated they were responsible for comparing the train consists leaving Greenbelt Yard to what was detailed on the interval sheets. The Terminal Supervisor stated this was achieved by visually comparing the odd-numbered cars (one, three, five, and seven) to the cars on the interval sheet.
- The Terminal Supervisor stated they confirmed Train ID 502’s cars one, three and five, but did not confirm car seven, or notice that a ninth and a tenth car followed the consist past their terminal.
- The Terminal Supervisor stated they were first notified of the ten-car consist when it arrived at Branch Avenue Station. The Terminal Supervisor stated the reason Branch Avenue Station was notified of a ten-car consist, was due to the obstruction of a track circuit that would have occurred by the ninth and tenth cars when Train ID 502 berthed properly at the eight-car marker.
- The Terminal Supervisor stated this track circuit notification did not occur at Greenbelt Station, as the train had come from the Yard, where no such circuit is present, limiting the visibility of the train consist on the RPM system.
- The Terminal Supervisor stated they believed a camera system oriented toward the Greenbelt Yard would assist in confirming train car consists in the future

Weather

On June 29, 2024, at the time of the incident, NOAA recorded the temperature as 82°F, with moderate cloud cover, winds averaging 9.7 mph, and 71% average humidity. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Greenbelt, MD.

Related Rules and Procedures

MOR 1.1.14 - The Interlocking Operator has full authority, jurisdiction, and control over all activities in the yard, except as noted in Rule 3.1.

MOR 7.1.4 – Rail Vehicle Operators removing Class 1 cars from storage or preparing Class 1 cars for customer service shall perform an interior and exterior inspection.

Terminal Operations Procedures Manual - The Terminal Supervisor shall monitor the platform and track area for hazards that may jeopardize the safety of passengers, or employees or could result in equipment damage. The Terminal Supervisor shall take appropriate action to rectify any unsafe situation or condition.

Human Factors

Evidence of Fatigue

Signs and Symptoms of Fatigue: 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. No video of the incident was available for review. The Train Operator reported feeling very alert at the time of the incident. The Train Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

Fatigue Risk: 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 Rail Vehicle Operator reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked day shift in the days leading up to the incident. The employee was awake for 1.56 hours at the time of the incident. The Rail Vehicle Operator reported 8 hours of sleep in the 24 hours preceding the incident. The off-duty period was 14.55 hours which provided an opportunity for 7-9 hours of sleep. The employee reported no issues with sleep.

Post-Incident Toxicology Testing

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

Findings

- The Rail Vehicle Operator stated they did not conduct a ground walk-around or external inspection before bringing Train ID 502 into mainline service.
- The Terminal Supervisor stated they did not observe the additional two cars as part of 502's consist when it passed their Terminal.
- Train ID 502's consist was assembled as a ten-car consist the previous day

Immediate Mitigation to Prevent Recurrence

- Rail Vehicle Operator Train ID 502 and Greenbelt Terminal Supervisor were removed from service, post-incident.

Probable Cause Statement

The probable cause of the Improper Door Operation event on June 29, 2024, at Greenbelt Station, was the rail vehicle operator's inattention and procedural error in failing to perform an exterior inspection of the train prior to departing the yard.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
118014MX_SAFECAPS_RTRA_001	(RC-1, CF-1) RTRA – Will ensure the Terminal Supervisor and Rail Vehicle Operator complete Re-Instruction Training with the Rail Operations Quality Training (ROQT) Department.	RTRA SRC	Completed
118014MX_SAFECAPS_RTRA_002	Reissue the Rail Operations Personnel Directive, Documenting Car Numbers on Manifest	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 Train ID 502

The Rail Vehicle Operator stated that they had been with WMATA for approximately 14 years, however, has only been a Rail Vehicle Operator for approximately 18 months. The Rail Vehicle Operator stated they currently hold an RWP Level 2 that expires on 08/31/2024.

The Rail Vehicle Operator stated they were on duty at 06:11 hours and had received their manifest. The Rail Vehicle Operator stated they had observed their consist on track 2 of the Greenbelt Yard and proceeded to conduct an internal inspection of the consist.

The Rail Vehicle Operator stated they did not conduct an external inspection or ground walk-around, even though they were advised that this was required prior to taking the train out.

The Rail Vehicle Operator stated they observed the CDU display the total cars in the consist as “eight,” but were also aware that the CDU would not display any more than eight cars if additional cars were present.

The Rail Vehicle Operator stated they were not advised by the Greenbelt Interlocking Operator that the consist comprised of ten cars.

The Rail Vehicle Operator stated they left towards Greenbelt Station and commenced their run there. The Rail Vehicle Operator stated the Greenbelt Terminal Supervisor did not advise that they were operating a ten-car consist.

The Rail Vehicle Operator stated they were advised by the Branch Avenue Terminal Supervisor at Branch Avenue Station that they had been operating a ten-car consist, at the end of their run.

The Rail Vehicle Operator stated they were then removed from service for post-incident testing.

Terminal Supervisor of Greenbelt Station

The Terminal Supervisor stated that they had been with WMATA for approximately 24 years, however, has only been a supervisor for approximately 2 months. The Terminal Supervisor stated they currently hold an RWP Level 2 that expires on 10/31/2024.

The Terminal Supervisor stated prior to the incident they were required to coordinate train movement out of Greenbelt Station.

The Terminal Supervisor stated they were responsible for comparing the train consists leaving Greenbelt Yard to what was detailed on the interval sheets. The Terminal Supervisor stated this was achieved by visually comparing the odd-numbered cars (one, three, five and seven) to the cars on the interval sheet.

The Terminal Supervisor stated they confirmed Train ID 502’s cars one, three and five, but did not confirm car seven, or notice that a ninth and a tenth car followed the consist past their terminal.

The Terminal Supervisor stated they were first notified of the ten-car consist when it arrived at Branch Avenue Station. The Terminal Supervisor stated the reason Branch Avenue Station was notified of a ten-car consist, was due to the obstruction of a track circuit that would have occurred by the ninth and tenth cars when Train ID 502 berthed properly at the eight-car marker.

The Terminal Supervisor stated this track circuit notification did not occur at Greenbelt Station, as the train had come from the Yard, where no such circuit is present, limiting the visibility of the train consist on the RPM system.

The Terminal Supervisor stated they believed a camera system oriented toward the Greenbelt Yard would assist in confirming train car consists in future.

The Terminal Supervisor stated they were removed for post-incident testing.

Appendix B – RTRA Documentation



Washington Metropolitan Area Transit Authority



Office of Rail Transportation: Managerial Incident Investigation Report

Incident Status: PRELIMINARY

GENERAL INCIDENT INFORMATION

Incident Type: Excessive Cars Dispatched
Incident Date: Saturday, June 29, 2024
Incident Time: 6:59am
Location: Greenbelt Terminal/Yard
Delay (Minutes): 0
Vehicles Involved: 502 L6017*6070*-6028*6062*6035
First Reported By: Branch Avenue Supervisor

BRIEF DESCRIPTION:

On the approximate date and time, an excessive number of cars were dispatched from Greenbelt Terminal and continued in revenue service to Branch Avenue Terminal. Branch Avenue Terminal Supervisor noticed the issue and notified the MICC. Train ID 502 was removed from service and stored in Branch Avenue Yard. Greenbelt Train Operator and Greenbelt Terminal Supervisor were removed from service for post-incident testing. All appropriate personnel have been notified.

Key Employees Involved & Employee Statements:

(Incident Report Forthcoming)
(Supervisor Report Forthcoming)

Interlocking Operator wrote in his Interlocking incident report the following: "On Saturday June 29, 2024 @ approximately 6:49am. I gave Operator permission with an absolute block to the "s" marker then contact Unit on ID 502 with cars 6017+6070+6028+6062 according to the RPM. He also had car 6035 in his consist but verified to me he had 8 cars in his consist. I was made aware of the 10 cars being dispatched by Unit Supervisor."



Washington Metropolitan Area Transit Authority



Office of Rail Transportation: Managerial Incident Investigation Report

Post Incident Testing & Employee History:

Train Operator [REDACTED] was removed from service and transported for Post Incident Testing.
 Train Operator [REDACTED] has been a WMATA employee since Mar 25, 2012.
 Train Operator [REDACTED] has been on the Rail since Jan 15, 2023.
 Train Operator [REDACTED] last certified as a Train Operator on Jan 10, 2023 (QL-1).
 Train Operator [REDACTED] has had zero (0) Safety Violation in the last 365 days.

Rail Supervisor [REDACTED] was removed from service and transported for Post Incident Testing.
 Rail Supervisor [REDACTED] has been a WMATA employee since Feb 17, 2000.
 Rail Supervisor [REDACTED] certified as a Supervisor on Apr 06, 2024 (QL-1)
 Rail Supervisor [REDACTED] last certified as a Terminal Supervisor on Jun 05, 2024 (QL-1).
 Rail Supervisor [REDACTED] has had zero (0) Safety Violation in the last 365 days.

Interlocking Operator [REDACTED] was NOT removed from service and transported for Post Incident Testing.
 Interlocking Operator [REDACTED] has been a WMATA employee since Jul 26, 1998.
 Interlocking Operator [REDACTED] has been on the Rail since Dec 18, 2005.
 Interlocking Operator [REDACTED] last certified as a Train Operator on Aug 26, 2022 (QL-1).
 Interlocking Operator [REDACTED] has had zero (0) Safety Violation in the last 365 days.

SIGNIFICANT INCIDENT TIMELINE:

06:49 - Train ID 502 was dispatched from Greenbelt Yard.
 06:59 - Train ID 502 was dispatched from Greenbelt Terminal.
 07:48 - Train ID 502 arrived at Branch Ave Terminal
 08:15 - Train ID 502 was sent into Branch Yard for storage.

SIGNIFICANT FINDINGS & PENDING ISSUES:

Pending MOR GR Violations.



Washington Metropolitan Area Transit Authority

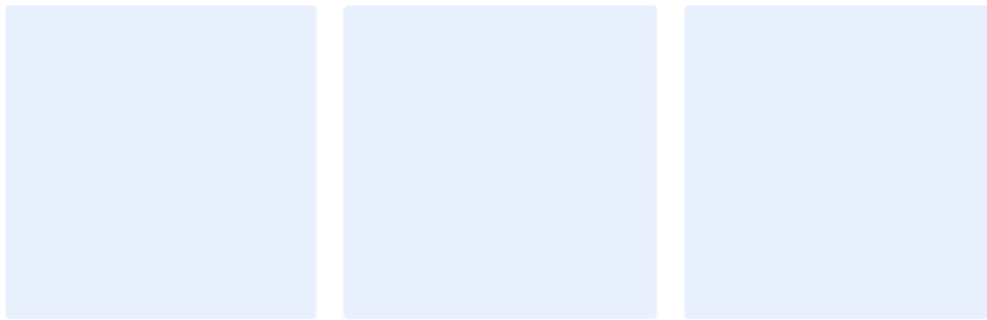


Office of Rail Transportation: Managerial Incident Investigation Report

CORRECTIVE ACTIONS:

Corrective action is pending. This incident is still under investigation.

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



Report Prepared by: Assistant Superintendent [REDACTED]

Report Reviewed by: _____

Yard: E99 Yard Name: Greenbelt Direction: North to South Bumper Post: RHS Storage Capacity: 290 User: [REDACTED]									
STORAGE TRACKS									
8					6006G-6007G	+ 6148G-6149G	+ 6177G-6178G	+ 6117G-6118G	20
Commissioning Facility 10			7096S-7097S	+ 7255N-7254N	+ 7178N-7179N			+ 7175n-7174n	19
Commissioning Facility 10								+ 7221n-7220n	18
6						6053G-DB-G	+ 6065G-DB-G	+ 6056G-6057G	17
16		7594A-7595A	+ 7609A-7608A	+ 7232n-7233n	+ 7425F-7424F	+ 6089G-6088G	+ 6090G-6091G	+ 6021G-6020G	16
16					2033C-2032C	+ 2025C-2024C	+ 2055C-2054C	+ 2071C-2070C	15
16		7316N-7317N	+ 7238N-7239N	+ 7693A-7692A	+ 7544A-7545A	+ 7509A-7508A	+ 7688A-7689A	+ 7205N-7204N	14
16					6032G-6033G	+ 6023G-6022G	+ 3045F-3044F	+ 7406F-7407F	13
16		7442F-7443F	+ 7667A-7666A	+ 7735A-7734A	+ 7744A-7745A	+ 7257N-7256N	+ 7728A-7729A	+ 7663A-7662A	12
16					7510A-7511A	+ 7151N-7150N	+ 7546A-7547A	+ 7555A-7554A	11
10								+ 7638A-7639A	10
16								+ 6039G-6038G	09
16		7266N-7267N	+ 7559A-7558A	+ 7574A-7575A	+ 7303N-7302N	+ 7026S-7027S	+ 7596A-7597A	+ 7219N-7218N	08
16								+ 6156G-6157G	07
16								+ 6154G-6155G	06
16		7226N-7227N	+ 7244N-7245N	+ 7417F-7416F	+ 6152G-6153G	+ 6133G-6132G	+ 6031G-6030G	+ 6058G-6059G	05
16	2049C-2048C	+ 2065C-2064C	+ 2015C-2014C	+ 2021C-2020C	+ 2006C-2007C	+ 2066C-2067C	+ 2034C-2035C	+ 2043C-2042C	04
16		2027C-2026C	+ 2009C-2008C	+ 2053C-2052C	+ 2069C-2068C	+ 5000G-5001G	+ 1000G-1001G	+ 4000G-4001G	03
16								+ 6160C-6161G	02
16								+ 6081G-6080G	01
16		6017G-6016G	+ 6070G-6071G	+ 6028G-6029G	+ 6062G-6063G	+ 6035G-6034G	+ 6181G-6180G	+ 6025G-DB-G	01
16								+ 6165G-6164G	01
16								+ 6103G-6102G	01
16								+ 6093G-6092G	01

Yard Car Count Summary		P1-Paint Booth/P2-Body Shop		SCRATCH TRACKS				SPECIAL TRACKS					
54	Release			S1									
92	Not Release			S2									
44	Out of Service												
58	Inactive												
8	Operational Reserve												
256	Total												

S&I BUILDING									
7n		DB-G-6168G	+ 6162G-6163G	+ 6100G-6101G					10
6n		6055G-6054G	+ 6087G-6086G	+ 6119G-6118G					10
5an		2005C-2004C				6135G-6134G			6
5n									14
4n			6127G-6126G	+ 6159G-6158G					10
3n				6175G-6174G					10
2n			6120G-6129G	+ 6001G-6000G	+ 6179G-6178G				10
1n		2030C-2031C	+ 2039C-2038C	+ 2059C-2058C	+ 2010C-2011C	+ 2062C-2063C	+ 2028C-2029C	+ 2000C-2001C	14
									16

https://rpmnv.wmata.com/YardTerminal/Greenbelt.aspx

Document 4 – Greenbelt Interlocking Operator’s Yard Activity Report of the rail cars stored on track 2 at 06:00 hours on June 29, 2024, which shows there were only 8 cars in the consist in question.

Incident Tracking Server: JPU0204

Query Find Maximo Incident #: Select Action

List View Incident Related Records Timeline

Incident: 8770891 Owner: Owner Group: Status: RESOLVED Attachments

Incident Details

Incident Start: 6/29/24 7:49 Rail Line: GRN

Train ID: 502 Jurisdiction:

Reported Location: Injuries???

Asset: R6017 6017, RAIL CAR, ALSTOM, 6000 AC, B CAR Removed From Service

Location: 1437 E99, GREENBELT YARD Equip. Taken Out of Service???

Summary: Doors open off the platform. SAFE was notified that t

Delay (mins.)	Trips	Time Out:	Time In:
Line Delay: 0	Partial: 0		
Passenger Delay: 0	Offload: 0		
Train / Bus Delay: 0	Late Dispatch: 0		
	No Dispatch: 0		
	Abandoned: 0		
	Reroutes: 0		
	Trips Lost: 0		

Track Location

Start

Chain Marker: Chain Marker:

Start Offset: End Offset:

Start Y-Offset: End Y-Offset:

Related Tickets Filter 0 - 0 of 0

Related Record Key	Description	Class	Status	Relationship
There are no rows to display.				

Document 5 – Maximo Work Order Page 1 of 2.

Select Ticket New Row

Related Work Orders Filter 1 - 1 of 1

Work Order	Asset	Description	Work Location	Failure Class	Labor Group	Job Plan	Status
18725464	R6017	Doors open off the platform. SAFE was i	2279	CMNT014			COMP

Details

Work Order: 18725464	Doors open off the platform. SAFE was notified that train 502 in	Requested By:
Asset: R6017	6017, RAIL CAR, ALSTOM, 6000 AC, B CAR	Requestor Phone: 301/955-2230
Location: 1437	E99, GREENBELT YARD	Start Chain Marker:
Work Location: 2279	F99, BRANCH AVENUE YARD	Start Offset:
Priority: 1		End Chain Marker:
Work Type: CM		End Offset:
Labor Group:		Failure Date: 6/29/24 17:19
Status: COMP		When Discovered: 20 INCIDENT REPORTED BY OCC
		Failure Class: CMNT014 DOOR
		Problem Code: 2438 N/A CODE (DOOR SYSTEM)
		Job Plan:

Select Work Order

Incident Date: June 29, 2024 Time: 06:54 hours
 Final Report – Improper Door Operation- Rev 1.
 E24499

Drafted By: SAFE 702 – 08/05/2024
 Reviewed By: SAFE 707 – 09/03/2024
 Approved By: SAFE 707 – 09/03/2024

Incident Date: June 29, 2024 Time: 06:54 hours
Final Report – Improper Door Operation- Rev 1.
E24499

Drafted By: SAFE 702 – 08/05/2024
Reviewed By: SAFE 707 – 09/03/2024
Approved By: SAFE 707 – 09/03/2024

WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page 1 of 1

Incident Information: This page must be completed for all incidents

Date: 6/29/24 Incident Time: 06:50 Time Reported: 7:50 Reported by: Customer Employee
 ROCC Other

Location

Station: Branch Ave Mezzanine #: _____ Track #/Destination: 2 Branch Ave Chain Marker/Signal Number: _____

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
 Snow Sleet/Ice Dark Tunnel/Underground 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: 562 Destination: Branch Ave Car Numbers(list all cars in consist): 6070 6028 6062 6075 Lead Car: 6007

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.

Called and got my Train from the Tower was told in was on the open End of Track 2. When I got to track 2 I walked thru 2 open doors. When I stepped over to my train which was the open End I kept up and verified 8 on the Console. Walked thru the train and was cleaning up as I got to the open End. Verified My Lunar cab Continued my day.

Employee Completing Report

Employee Name (print): _____ Employee Signature (print): _____ Employee #: _____ Date: 6/29/24

Division: Green belt Run #: 202 Block #: N/A Assigned Days: S/M

To Be Completed By Reviewing Manager

Supervisor Name (print): _____ Supervisor Signature: _____ Employee #: _____ Date: _____

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 6 – Rail Vehicle Operators Incident Report 1 of 1.

Appendix X – Why-Tree Analysis

