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W-0389 Automatic Train Protection Safety Event at Addison Road Station – November 14, 2024

Document Purpose

This WMSC written report on WMATA Metrorail's safety event investigation and review of Metrorail's findings in accordance with the WMSC Program Standard, in conjunction with the attached Metrorail investigation report that has undergone WMSC staff review, feedback, and Metrorail revision, describes the investigation activities, identifies factors causing or contributing to the accident, 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 report) as a unified item for adoption at the Washington Metrorail Safety Commission meeting on August 5, 2025

WMSC staff recommend adoption of this investigation.

Automatic Train Protection

Automatic Train Protection (ATP) is a subsystem of Metrorail's Automatic Train Control (ATC) system that is designed to provide vital protection against collision and derailment by providing train separation based upon track circuit occupancy (train detection) and by controlling train speeds. This includes protections against rail vehicle movement through red signals, misaligned switches, and slowing or stopping trains before a collision or overspeed derailment can occur.

Safety event summary:

On Thursday, November 14, 2024, two train operators operated a train without identifying that Automatic Train Protection was not activated (cut out). After transporting the train from Alexandria Rail Yard to Franconia-Springfield Station, Train Operator #1 began operating the train in passenger service at approximately 4:28 p.m., with ATP cut out, from Franconia-Springfield Station to the other end of the Blue Line, Downtown Largo Station. After arriving at Downtown Largo Station, Train Operator #2 relieved Train Operator #1 and took over train operation in passenger service toward Franconia-Springfield Station. At 5:56 p.m., while operating between Morgan Boulevard and Addison Road stations, Train Operator #2 identified that the train did not have ATP and reported it to the Radio Rail Traffic Controller in the Control Center. The train had been operating in passenger service without protection against train collision and derailment for nearly 1.5 hours before it being identified.

The Radio Rail Traffic Controller dispatched a Car Maintenance Road Mechanic to Addison Road Station. Train Operator #2 indicated to the Radio Rail Traffic Controller twice that they would be offloading passengers and removing the train from service at the next station stop due to no ATP. The Rail Traffic Controller informed Train Operator #2 that a mechanic would be boarding the train at Addison Road Station and instructed the train to continue to the station at restricted speed without providing the required absolute block. An absolute block is a method of protection that allows only one train or vehicle to occupy a specific section of track. At 5:59 p.m., the Radio Rail Traffic Controller instructed

Train Operator #2 to offload passengers at Addison Road Station and inquired if ATP was cut out on the train. Despite five attempts, there was no response from Train Operator #2. The Mechanic met the train at Addison Road Station and re-sealed the ATP switch in the correct position at 6:00 p.m. The Train Operator indicated they had not heard the Radio Rail Traffic Controller's previous transmissions. The train was allowed to continue in passenger service to Van Dorn Street Station, where it was removed from service at 6:54 p.m. for post-event investigation.

The investigation into this event later determined that a Car Maintenance Electrical Mechanic sealed the ATP switch in the incorrect position after performing an Auto Daily Safety Test on railcar 3057 earlier that day. Railcar 3057 was later coupled to the incident train by an Alexandria Yard Operator, who also failed to identify that ATP was cut out and that the switch was in the incorrect position. Both Train Operators did not adhere to Metrorail's Interior/Exterior Inspection guidelines, which would have identified that the ATP switch was not in the proper position prior to each operator commencing train operation. Additionally, rail traffic controllers in the Control Center did not identify that ATP was cut out, as displayed on their Advanced Information Management System display, denoted by white numbering on the corresponding train graphic.

The Radio Rail Traffic Controller and Train Operator 1 and 2 were removed from service for post-event toxicology testing.

The probable cause of this safety event is a lack of situational awareness and failure to adhere to established Metrorail policies and procedures, including Metrorail Operating Rule 8.17 Rail Vehicle Mode of Operation. This event is an example of a systemic failure; five employees across three departments failed to identify that ATP was cut out on the railcar.

Investigation W-0389 led to specific corrective actions including:

- Metrorail developed a Rail Operations Personnel Notice titled *Pre-Trip Inspection Reminder & ATP Compliance*, to ensure pre-trip inspections and understanding of the implications of operating with ATP cut out
- Metrorail disseminated a notice to Interlocking Operators to remind rail vehicle operators to check all sealed switches and review console indications
- Metrorail's Safety Department developed a video to empower personnel to report hazards and near misses
- Managerial staff were instructed to brief all staff on the incident and remind them to pay attention to ATP switches during Daily Inspections
- Metrorail developed a Lessons Learned document for managerial staff to distribute and conduct briefings
- Metrorail distributed a memorandum to rail traffic controllers on observing Advanced Information Management System (AIMS) indications with trains operating with ATP cutout

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

FINAL REPORT OF INVESTIGATION A&I E24931

Date of Event:	November 14, 2024
Type of Event:	O-25 Noteworthy Action/Operation (ATP Cut-Out)
Incident Time:	17:55 Hours
Location:	Addison Road Station, track 2
Time and How received by Safety:	17:55 Hours – Safety Information Official (SIO)
WMSC Notification Time:	19:54 hours
Responding Safety Officers:	WMATA: None WMSC: None Other: None
Rail Vehicle:	Train ID 444 (L3057-3056x3085-3084x3065-3064x3062-3063T)
Injuries:	None
Damage:	None
Emergency Responders:	None
SUDS I/A Incident Number:	20241115#121453

Addison Road Station – Noteworthy ATP Cut Out

November 14, 2024
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Abbreviations and Acronyms

AIMS	Advanced Information Management System
AOM	Assistant Operations Manager
ATP	Automatic Train Protection
CCTV	Closed-Circuit Television
CMNT	Car Maintenance
CMOR	Chief Mechanical Officer
IIT	Incident Investigation Team
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OM	Operations Manager
SIO	Safety Information Official
SMS	Safety Measurement System
ROS	Rail Operations Supervisor
RPM	Rail Performance Monitoring System
RTC	Rail Traffic Controller
RTRA	Rail Transportation
RVO	Rail Vehicle Operator
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

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

On Thursday, November 14, 2024, Train ID 444 (L3057-3056x3085-3084x3065-3064x3062-3063T), an eight-car consist operated from Downtown Largo Station to Addison Road Station on track 2 with Automatic Train Protection (ATP) cut-out.

Train ID 427 (727) departed from Alexandria Yard, with Rail Vehicle Operator (RVO) #1, in non-revenue service to Franconia Springfield Station. The Advanced Information Management System (AIMS) displayed the car numbers in "white," which indicated ATP was cut-out. The consist arrived at Franconia Springfield Station on track 2 at 16:31 hours.

The RVO #1 of Train ID 427 departed from Franconia Springfield Station at 16:37 hours with Downtown Largo Station as the destination. Once Train ID 427 arrived at Downtown Largo Station, the relief RVO (RVO #2) keyed up in Lead Car 3057, changed the Train ID to 444, and departed at their scheduled time of 17:54 hours without noticing that ATP was cut out.

Between Morgan Boulevard Station and Addison Road Station, RVO #2 reported to the Metro Integrated Command and Communications (MICC) Center, Radio Rail Traffic Controller (RTC) that their train did not have ATP. RVO #2 was instructed to continue at restricted speed. A Rail Car Maintenance (CMNT) Road Mechanic was instructed to board Train ID 444 at Addison Road Station.

The CMNT Road Mechanic boarded Train ID 444, identified that the ATP was cut out, cut in the ATP, and re-sealed the ATP toggle switch at Addison Road Station on track 2. Train ID 444 remained in revenue service until it arrived at Van Dorn Station track 2, where it was placed out of service for a post-incident inspection.

In adherence to Standard Operating Procedure 102-01-02, which outlines the protocol for Removing an Employee from Service for involvement in an operational safety event, The Radio RTC , RVO #1, and RVO #2 were removed from service and transported for post-incident testing.

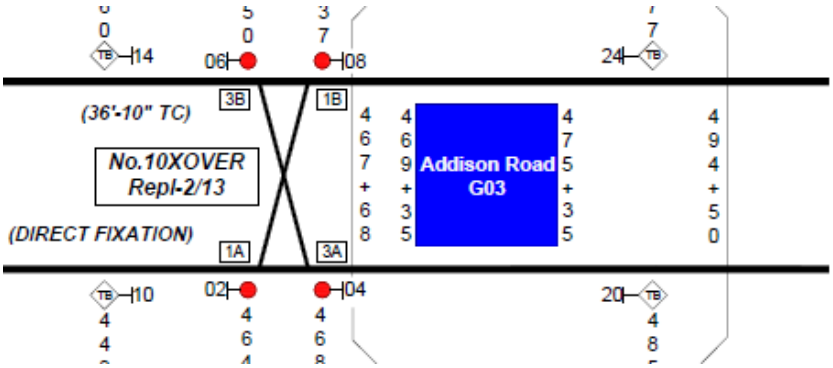
In accordance with the Office of the Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Operations Administrative Policy (OAP) 102.06, the Metro Integrated Command and Communications Center (MICC) promptly initiated the removal of Train ID 444 from revenue service for post-incident investigative measures. This action adhered to the Rail Vehicle Event Investigation Policy, ensuring a comprehensive examination of the incident.

The probable cause of the Automatic Train Protection (ATP) Cut-out event on November 14, 2024, at Addison Road Station, was the lack of situational awareness and failure to properly re-seal the Automatic Train Protection (ATP) switch in the correct position by the Car Maintenance (CMNT) Electrical Mechanic. A Contributing Factor was that two (2) RVOs failed to follow the established Interior/Exterior Inspection guidelines identified in the Metro Operating Rulebook (MOR).

Incident Site

Addison Road Station is an outdoor station with a center platform.

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 video and document review.

- Formal Interviews – Safety interviewed five (5) individuals as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). Safety interviewed the following individuals:
    - Radio Rail Traffic Controller (RTC)
    - Rail Vehicle Operator #1
    - Rail Vehicle Operator #2
    - Car Maintenance (CMNT) Road Mechanic
    - Car Maintenance Electrical Mechanic

- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.

- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
    - Metrorail Operating Rulebook (MOR)
    - National Oceanic and Atmospheric Administration (NOAA)
    - RVO #1 30-day work history
    - RVO #1 Incident Report
    - RVO #1 Manifest
    - RVO #2 30-day work history
    - RVO #2 Incident Report
    - RVO #2 RVO Manifest

- RTRA Managerial Report
- Largo Terminal Interval Sheet
- Yard Operators Incident Report
- CMNT Daily Incident Report Log

- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
  - Audio Recording System (ARS) playback
  - Closed-circuit television (CCTV)
  - Rail Performance Monitoring System (RPM)

Investigation

On Wednesday, November 13, 2024, at 19:58 hours, Train ID 825, which consisted of six non-revenue cars (L3058-3059, 3108-3109, 3057-3056T), was transported from West Falls Church Yard to Alexandria Yard.

On Thursday, November 14, 2024, at 00:44 hours, a CMNT Mechanic performed an Auto Daily Safety Test in car 3057. At 00:53 hours, the ATP cutout goes high and remains high, indicating the switch was sealed in the cutout position. At 01:04 hours, car 3057 was keyed down.

Rail car 3057 was uncoupled from rail car 3109 while on track 11 and was then relocated to storage track 18. At 12:11 hours, rail car 3056 was added to rail car 3085, forming an eight-car consist on storage track 18 in Alexandria Yard. A Yard Operator performing yard duties coupled rail cars 3057/3067 and 3085/3084 together and adjusted the handbrake on rail car 3057, but did not observe the ATP switch in the cutout position.

At 12:30 hours, the consist was assigned for revenue service as Train ID 427.

Train ID 427 (727) departed from Alexandria Yard, with RVO #1 operating, in non-revenue service to Franconia Springfield Station with ATP cut out. AIMS display showed that ATP was cut out by showing car numbers in white.

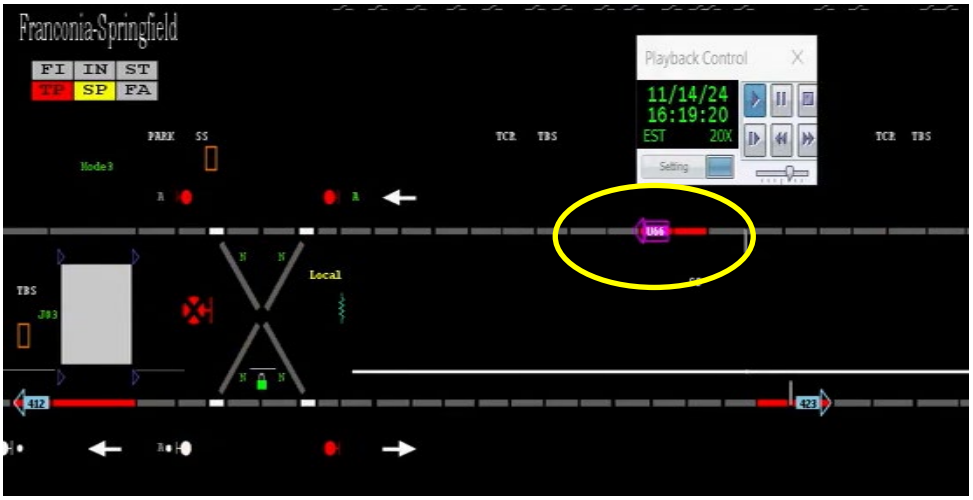


Figure 1 – Train ID 427 departing Alexandria yard with ATP cut-out (unknown Train ID white) at 16:15 hours.

Once the consist arrived at Franconia Springfield Station on track 2 at 16:31 hours, the Train ID was changed to ID 427. The train was keyed up in cat 3063 and departed at 16:37 hours, with Downtown Largo Station as the destination ATP was cut in car 3063.

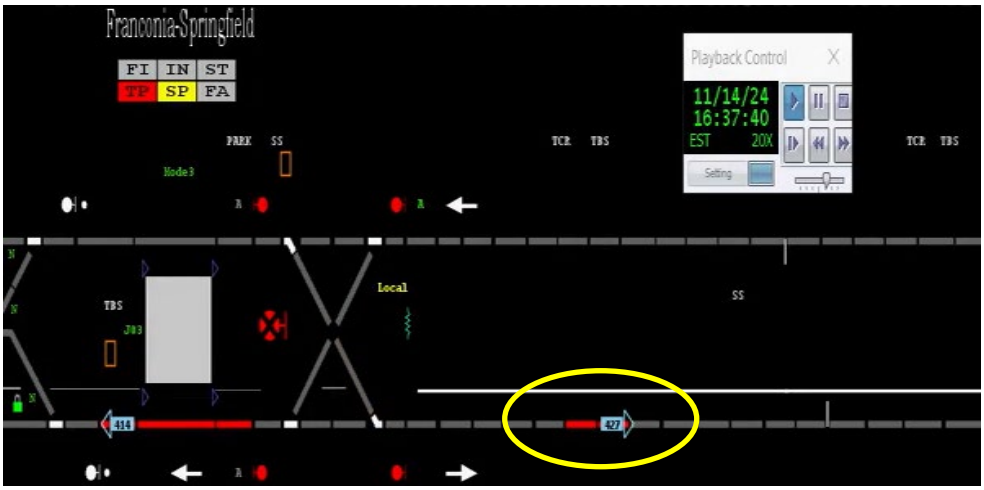


Figure 2 -Train ID 427 departing Franconia Springfield at 16:37 hours.

Once Train ID 427 arrived at Downtown Largo Station, RVO #1 keyed down the train and RVO #2 keyed up in Car 3057, changed the Train ID to 444, and departed at 17:54 hours from Downtown Largo Station with ATP cut out.

Figure 1 – Train ID 444 departing Downtown Largo Station at 17:54 hours.

Between Morgan Boulevard Station and Addison Road Station, RVO #2 reported to the MICC Center, Radio RTC that the train did not have ATP. RVO #2 was instructed to continue at restricted speed. The Radio RTC did not provide an absolute block. A CMNT Road Mechanic was instructed to board Train ID 444 at Addison Road Station.

The CMNT Road Mechanic boarded Train ID 444 and observed ATP was in the cut out position, then cut in the ATP, and re-sealed the ATP toggle switch at Addison Road Station on track 2.

The Radio RTC advised the AOM that ATP was normalized (cut back in) and re-sealed by a CMNT Road Mechanic at 18:00 hours. Train ID 444 continued in revenue service towards Franconia Springfield Station on track 2.

At 18:54 hours, The MICC Assistant Director instructed the AOM to offload Train ID 444 at Van Dorn Street Station and transport the train non-revenue to Alexandria Yard. RVO #2 was instructed by the Radio RTC to offload the train at Van Dorn Street Station on track 2, verify the train was clear of customers, and transport the train non-revenue to Alexandria Yard.

At 19:04 hours, RVO #2 informed the Radio RTC that the train was clear of customers, at which time RVO #2 was granted a permissive block to signal J02-06 and continued transporting the train to Alexandria Yard.

Chronological Event Timeline

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

Time	Description
	11/13/2024
19:58:00 hours	Car 3057 was transported to Alexandria Yard from West Falls Church Yard on non-revenue Train ID 825. [RPM]
21:02:00 hours	Train ID 825 was secured on storage track 11 in Alexandria Yard. [RPM]
21:02:00 hours	Train ID 825 was stored in Alexandria Yard on track 11. [CMNT Report]
	11/14/2025
00:44:53 hours	Car 3057 was keyed up. [CMNT Report]
00:46:39 hours	Auto DST initiated on car 3057. [CMNT Report]
00:48:01 hours	Auto DST completed. [CMNT Report]
00:53:07 hours	ATP cutout signal goes High and returns low. [CMNT Report]
00:53:10 hours	ATP cutout signal goes High and returns low. [CMNT Report]
00:53:15 hours	ATP cutout signal goes High and returns low. [CMNT Report]
00:53:20 hours	ATP cutout signal goes High and returns low. [CMNT Report]
00:53:27 hours	ATP cutout goes High and remains High, indicating the switch was sealed in the cutout position. [CMNT Report]
01:04:31 hours	Car 3057 was keyed down. [CMNT Report]
01:03:06 hours	Car 3056 was keyed up. [CMNT Report]
01:06:40 hours	Auto DST was initiated on car 3056. [CMNT Report]
01:08:04 hours	Auto DST completed. [CMNT Report]
01:11:44 hours	Car 3056 was keyed down. [CMNT Report]
12:09:15 hours	Car 3057 keyed up with ATP cut out. [CMNT Report]
12:09:41 hours	Master Controller moved to a P5 Power Mode and the train began to move. [CMNT Report]
12:11:44 hours	The train travels 1,745 feet and comes to a complete stop. [CMNT Report]
12:11:46 hours	Car 3057 is keyed down. [CMNT Report]
12:12:35 hours	Car 3056 is keyed up. [CMNT Report]
12:12:44 hours	Master Controller moved to a P5 Power Mode and the train began to move. [CMNT Report]
12:14:49 hours	The train travels 1,392 feet and comes to a stop on storage track 18 in Alexandria Yard. [CMNT Report]
12:17:04 hours	Car 3056 is keyed down. [CMNT Report]
12:30:00 hours	The train consist was assigned to an RVO for revenue service. Train ID 427 [RPM Report]

Time	Description
16:00:32 hours	Car 3057 was keyed up with ATP cutout. [CMNT Report]
16:04:48 hours	Master Controller moved to a P5 Power Mode and the train began to move. [CMNT Report]
16:08:46 hours	The train travels 2,938 feet and comes to a complete stop on storage track 18 in Alexandria Yard. [CMNT Report]
16:28:00 hours	RVO #1 operated lead car 3057 of Train ID 427 to Franconia Springfield Station track 2 with ATP cutout. [AIMS]
16:28:27 hours	RVO #1 keyed up Car 3063 on the opposite end at Franconia Springfield Station and went into revenue service to Downtown Largo Station on track 1. [CMNT Report]
17:46:20 hours	Train ID 427 arrived at Downtown Largo Station. [AIMS]
17:51:33 hours	RVO #2 entered lead car 3057, keyed up, and entered Train ID 416 (444), at Downtown Largo Station with ATP cutout. [CMNT Report]
17:53:00 hours	Train ID 416 (444) departed from Downtown Largo Station crossing from Track 1 to Track 2, traveling to Franconia Springfield Station. [CCTV]
17:56:59 hours	Train ID 416 Rail Vehicle Operator (RVO): Informed the Radio Rail Traffic Controller (RTC) that they needed Car Maintenance (CMNT). Radio RTC: Asked the RVO what was wrong with their train. Train ID 416 RVO: Reported their train did not have Automatic Train Protection (ATP). [Radio Ops 2]
17:57:25 hours	Radio RTC #1: Asked CMNT Road Mechanic for their location. CMNT Road Mechanic: Reported to the Radio RTC, that their location was at Addison Road Station. Radio RTC #1: Informed the CMNT Road Mechanic to see the next train for a report of no ATP. [Radio Ops 2]
17:57:47 hours	Radio RTC #1: Informed Train ID 416 RVO that their train ID should 444 and to recycle their train ID at Addison Rd Station. Train ID 444 RVO: Reported to the Radio RTC, when this train gets to the platform its going out of service because it has no ATP. Radio RTC #1: Informed Train ID 444 RVO that the CMNT Road Mechanic was standing by at Addison Rd Station to check their train. Train ID 444 RVO : Replied to the Radio RTC, this train has no protection and I'm about to offload. Radio RTC #1: Informed Train ID 444 RVO that their train was going to be checked out at Addison Rd Station and asked was their ATP cutout. Radio RTC #1: Instructed Train ID 444 RVO to proceed at a restricted speed to Addison Rd Station and asked again is ATP cutout. No reply from the RVO. [Radio Ops 2]
17:58:53 hours	Radio RTC #1: Asked the Rail Operations Supervisor (ROS) for their location. ROS: Reported they were at Downtown Largo Station. [Radio Ops 2]

Time	Description
17:59:03 hours	Radio RTC #1: Instructed Train ID 444 RVO to offload at Addison Rd Station and asked again was their ATP cutout. No reply from the RVO. [Radio Ops 2]
17:59:08 hours	Radio RTC #1: Informed the MICC Communications Specialist that Train ID 444 will be offloaded at Addison Rd due to ATP being cutout. [Phone Ops 2]
17:59:18 hours	Radio RTC #1: Made three attempts to contact Train ID 444 RVO. No reply from RVO. [Radio Ops 2]
18:00:03 hours	Operations Manager (OM): Informed the Safety Information Official (SIO) that Train ID 444 will be offloaded at Addison Rd due to ATP being cutout. [Phone Rail 1]
18:00:16 hours	Radio RTC #1: Asked CMNT Road Mechanic if they were aboard Train ID 444. CMNT Road Mechanic: Reported they were aboard the train. Radio RTC #1: Asked CMNT Road Mechanic was ATP cutout. CMNT Road Mechanic: Reported the ATP was sealed in the cutout position, but they had normalized the ATP switch. Radio RTC #1: Acknowledged and repeated the CMNT Road Mechanics transmission. [Radio Ops 2]
18:00:17 hours	Radio RTC #2: Asked Train ID 444 RVO if they offloaded their train at Addison Rd Station. Train ID 444 RVO: Reported they had not offloaded their train and that this was their first time hearing that transmission. They reported they would have to reverse ends. Radio RTC #2: Instructed Train ID 444 RVO to remain in service and asked if they passed G03-08 signal. Train ID 444 RVO: Reported to the Radio RTC that G03-08 signal was lunar, but they had zero speed commands. Radio RTC #2: Gave Train ID 444 RVO a permissive block to Capitol Heights Station. Train ID 444 RVO: Copied the permissive block and repeated it back to the Radio RTC. [Radio Ops 2]
18:00:43 hours	Radio RTC #1: Informed the Assistant Operations Manager (AOM) that Train ID 444 ATP was sealed in the cutout position, but CMNT Road Mechanic normalized the ATP switch. [Phone Ops 2]
18:30:22 hours	AOM provided the OM with the RVO's information. [Phone Rail 1]
18:34:12 hours	AOM: Inquired about Train ID 444 RVO location. Radio RTC #2: Advised the RVO was relieved for a personal by a Supervisor at Federal Center SW Station. [Phone Rail 2]
18:53:51 hours	MICC Assistant Director: Instructed the AOM to offload Train ID 444 at Van Dorn Station and send it to Alexandria Yard. [Phone Rail 1]
18:54:09 hours	AOM: Instructed the Radio RTC to offload Train ID 444 at Van Dorn Station and send it to Alexandria Yard. [Phone Ops 3]
18:54:22 hours	Radio RTC #3: Instructed Train ID 444 RVO to offload their train at Van Dorn Station and verify its clear of customers.

Time	Description
	Train ID 444 RVO: Copied the Radio RTCs instruction to offload and verify clear of customers. [Radio Ops 3]
18:55:15 hours	Radio RTC #3: Repeated their instructions to Train ID RVO #2 to offload at Van Dorn Station. They informed them that after verifying clear of customers they would stay on the Largo end and take the train to the yard from Van Dorn Station. Train ID 444 RVO: Copied the Radio RTCs instructions and repeated them back. [Radio Ops 3]
19:04:46 hours	Train ID 444 RVO: Reported to the Radio RTC #2, that they were clear of customers. Radio RTC #3: Gave Train ID 444 RVO permission at J02-06 signal to transport the out-of-service train to Alexandria yard. [Radio Ops 3]
19:28:57 hours	Train ID 444 RVO: Contacted the OM and advised they were in Alexandria Yard. OM: Advised that Radio RTC #2 was attempting to locate them. Train ID 444 RVO: Stated after taking their personal they went upstairs and boarded a yellow line train, picked up their train at Pentagon Station, and continued on their trip. Offloaded Train ID 444 at Van Dorn Station, track 2, and laid the train up in Alexandria Yard. OM: Acknowledged and understood their concern [Phone Rail 2]
19:47:28 hours	OM confirmed that Train ID 444 RVO was in Alexandria Yard. [Phone Rail 1]
19:51:37 hours	AOM: Instructed a Rail Operations Supervisor to retrieve Train ID 444 RVO from Alexandria Yard and escort for Post Incident Testing. Supervisor: Acknowledged. [Phone Rail 2]

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

Advanced Information Management System (AIMS)

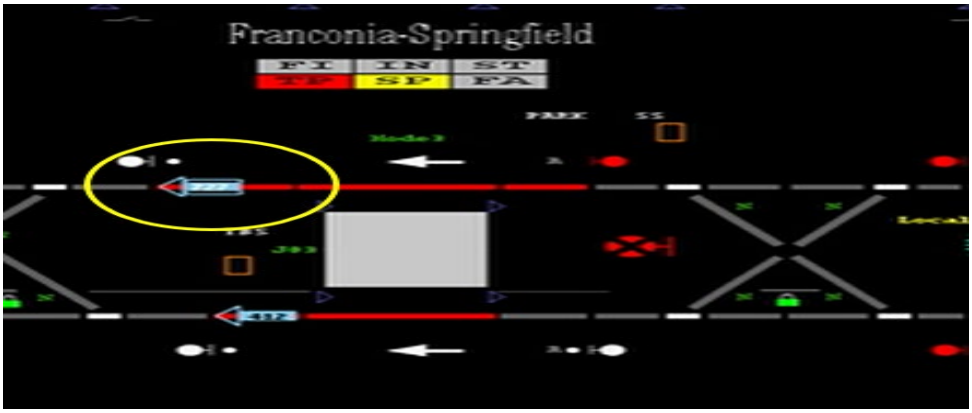


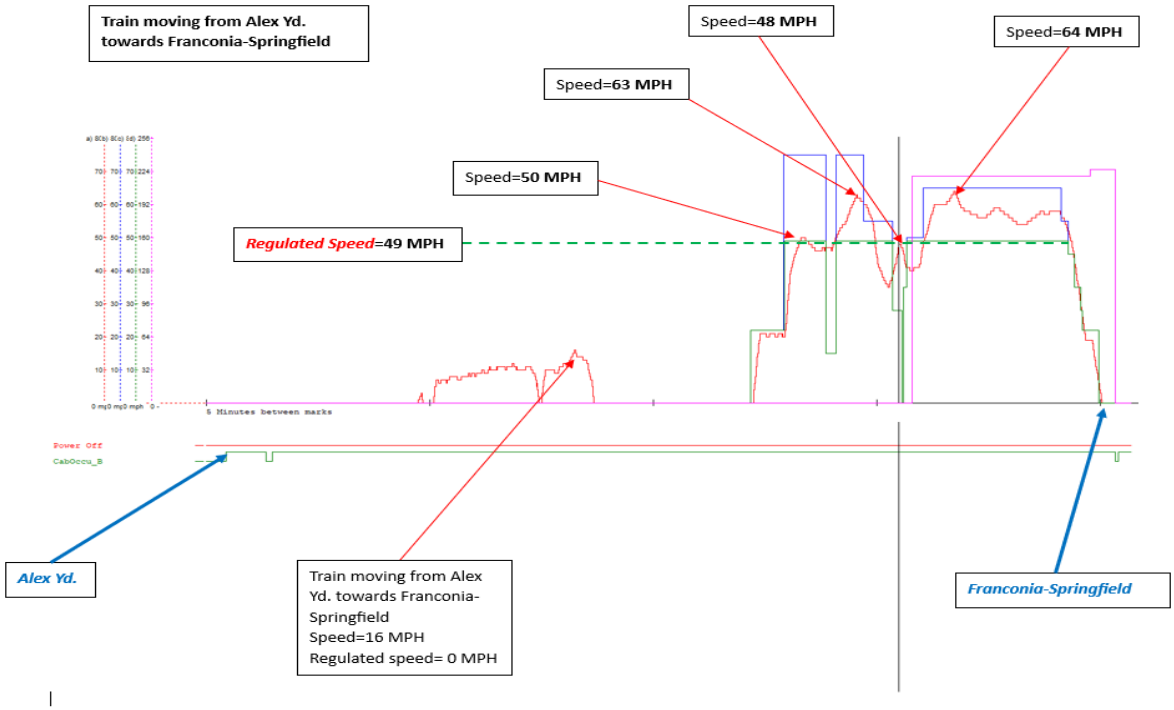
Figure 2 - Train ID 727 on the platform at Franconia-Springfield Station with ATP cut-out at 16:23 hours.

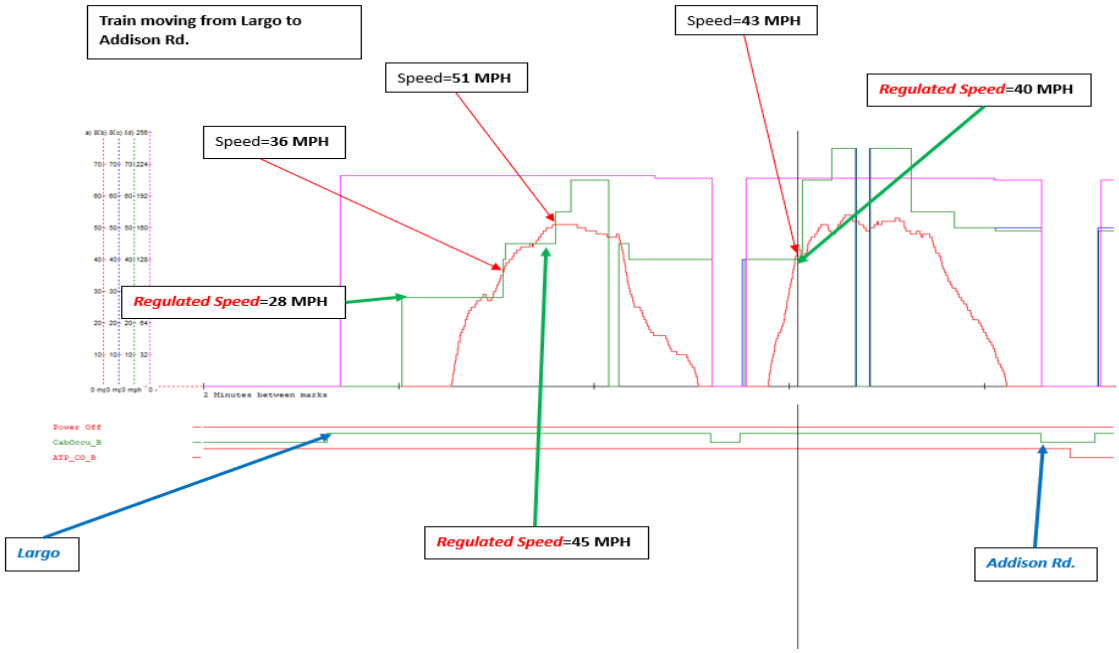
The Office of Chief Mechanical Officer / Vehicle Monitoring and Diagnostic System (VMDS)
Adopted from Office of Chief Mechanical Officer IIT report with minor formatting and grammatical edits:

Based on VMS data, when conducting the Daily DI Inspection, the technician ran the auto DST test on car 3057. After the DST, the ATP Cutout switch can be seen go High 4 times and then remaining HIGH. Normal ATP C/O will see the activation of the ATP cutout switch going High and returning low due to it being a spring-loaded switch. There are 2-3 activations of the switch before it goes High and remains high. This is an indication that the switch was sealed in the incorrect position. The ATP cutout remained HIGH throughout the day until normalized at 17:59 while on mainline.

See the table below:

When departing Alexandria Yard towards Franconia Springfield	Max Actual Speed	Regulated Speed	Limiting Speed
16:13:22.716	***16 MPH***	**0 MPH**	**0 MPH**
16:13:24.696	***50 MPH***	**49 MPH**	**75 MPH**
16:14:39.248	***63 MPH***	**49 MPH**	**75 MPH**
16:15:36.568	***48 MPH***	**28 MPH**	**28 MPH**
16:16:49.651	***64 MPH***	**49 MPH**	**65 MPH**
When departing Largo towards Franconia Springfield	**Max Actual Speed**	**Regulated Speed**	**Limiting Speed**
17:53:21.412	***36 MPH***	**28 MPH**	**28 MPH**
17:53:53.928	***51 MPH***	**45 MPH**	**45 MPH**
17:56:21.944	***43 MPH***	**40 MPH**	**40 MPH**





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

Office of Systems Maintenance, Office of Radio Communications)

No communication issues were identified as being contributory to the incident.

Office of Rail Transportation
Adopted from Office of Rail Transportation report:

Post Incident Testing & Employee History:

- *RVO #1 was hired on: July 15, 2007.*
- *Certified Rail Vehicle Operator since: March 30, 2014.*
- *RVO #1 Last Certification Date: July 24, 2024. Passed 1st attempt with 94% on MOR & TVOIM Exams •*
- *No previous reported violations.*

Interview Findings and Written Statements
As part of the investigation launched into the event, Safety interviewed five (5) people. The interviews identified the following key findings associated with this event. The findings detailed below include reported information from involved personnel and may conflict with other data sources contained in the report.

Weather

On November 14, 2024, at 17:55 hours, NOAA recorded the temperature as 51°F, with clear skies, winds 3 mph, and 77% humidity. Addison Road is an outdoor station. The weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Capitol Heights, MD

Related Rules and Procedures

Metrorail Operating Rulebook, Effective September 1, 2023

8.17 Rail Vehicle Mode of Operations

8.17.9.6 After a Class 1 rail vehicle has been operated in Mode 3, or when the "ATP cut-out" switch has been moved to the CUT-OUT position for any reason, the train must be moved under a permissive or absolute block at Restricted Speed, or as directed by the Rail Traffic Controller.

8.17.9.7 That pair of cars shall not be used as a lead pair in customer service until Rail Car Maintenance has inspected the cars, and the "ATP Cut-Out" switch has been resealed.

8.17.10 If the Class 1 rail vehicle's mode of operation is being changed from Mode 3 to Mode 1 or Mode 2 on mainline, the Office of Car Maintenance Mechanic or Office of Rail Transportation Supervisor shall ensure the following steps are taken:

a. Move the master controller to the AUTO/STORE position,

b. Move the mode direction switch to the AUTO/STORE position,

c. Observe "ATP Cut-Out" indication is not illuminated,

d. Reseal the "ATP Cut-Out" switch,

e. Return to Mode 1 or Mode 2 operation.

8.17.11 On the mainline, prior to authorizing Mode 2 - Level 2 or Mode 3 operation, or prior to moving any rail vehicle not equipped with Automatic Train Protection, the Rail Traffic Controller shall establish an absolute block.

Human Factors

Electrical Mechanic

Evidence of Fatigue

We evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No video of the involved person was available to ascertain whether evidence of fatigue was present. The Electrical Mechanic reported feeling fully alert at the time of the incident. The Electrical Mechanic reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

We evaluated incident data for fatigue risk factors. No significant risks were identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Electrical Mechanic reported keeping a regular sleep schedule in the days leading up to the incident. The Electrical Mechanic night shifts in the days leading up to the incident. The employee was awake for 9.96 at the time of the incident. The Electrical Mechanic reported six hours of sleep in the 24 hours preceding the incident. The off-duty period was 15 hours which provides an opportunity for 7-9 hours of sleep. This was a comparable amount of sleep as the Electrical Mechanic's usual workday sleep durations. The employee reported no issues with sleep.

Post-Incident Toxicology Testing

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

The Electrical Mechanic was not removed from service.

Findings

- On November 13, 2024, at 19:58 hours, rail car 3057 (Train ID 825) was transported to Alexandria Yard for a daily safety test.
- On November 14, 2024, Car Maintenance personnel performed a daily safety test on rail car 3057. After the daily safety test was complete the Car Maintenance personnel sealed the Automatic Protection Switch in the cutout position.
- A Yard Operator performing yard duties coupled rail cars 3057/3067 and 3085/3084 together and adjusted the handbrake on rail car 3057 but did not observe the ATP switch in the cutout position.
- The Radio RTC authorized Train ID 444 to proceed following the train operator's report of an ATP (Automatic Train Protection) failure. (moved from Morgan Boulevard to Addison Road Station)
- CMNT was at Addison Road Station and reset the ATP (sealed the switch)
- Train ID 444 was taken out of service at Van Dorn Station.

Immediate Mitigation to Prevent Recurrence

- Train ID 444 was removed from service at Van Dorn Station for post-incident inspection.
- The Rail Vehicle Operator was removed from service.
- Car Maintenance emailed all supervisors reminding them to have staff to check all sealed switches during Daily Inspections (DI).
- The Terminal Supervisors are reminding RVO to check the sealed switches before departing the terminal.
- Rail Supervisors are instructing personnel to check sealed switches.
- MICC RTC will scan the AIMS periodically checking for trains illuminated in white (ATP cut out).

Probable Cause Statement

The cause of the Automatic Train Protection (ATP) Cut-out event on November 14, 2024, at Addison Road Station, was the lack of situational awareness and failure to properly re-seal the Automatic Train Protection (ATP) switch in the correct position by the Car Maintenance (CMNT) Electrical Mechanic. A Contributing Factor was that two (2) Rail Vehicle Operators failed to follow the established Interior/Exterior Inspection guidelines identified in the Metro Operating Rulebook (MOR).

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
121453_SAFECAPS_RTRA_001	Developed a Rail Operations Personnel Notice titled Pre-Trip Inspection Reminder & ATP Compliance, to ensure pre-trip inspections and understanding of the implications of operating with ATP cut out.	RTRA SRC	Completed
121453_SAFECAPS_RTRA_002	Notice to Interlocking Operators to remind RVOs to check all sealed switches and review console indications.	RTRA SRC	Completed
121453_SAFECAPS_SAFE_002	Safety will work with all parties involved to develop a video to empower personnel to report hazards and near misses.	SAFE_SRC	Completed
121453_SAFECAPS_CMNT_001	Instructed managerial staff to brief all staff on the incident and remind them to pay attention to ATP switches during Daily Inspections	CMNT SRC	Completed
121453_SAFECAPS_CMNT_002	Developed a Lessons Learned Document for managerial staff to distribute and conduct briefings.	CMNT SRC	Completed
121453_SAFECAPS_MICC_001	Distributed a Memorandum to RTCs on observing AIMS indications with trains operating with ATP cutout.	MICC SRC	Completed

Appendices

Appendix A – Interview Summaries

Rail Vehicle Operator #1 (RVO)

RVO #1 is a WMATA employee with 17 years of service and nine (9) years of experience as an RVO. The RVO holds a Roadway Worker Protection (RWP) Level 2 certification that expires in December 2024. Prior to the interview, the RVO responded to Safety fatigue assessment questions. The RVO stated during the time they brought the train out of Alexandria Yard, they were feeling moderately alert and experienced some issues concentrating due to a non-work related matter.

During the formal interview, RVO #1 stated they were assigned the train on track 18 in Alexandria Yard. They performed a ground walkaround inspection, connected the inter-car barriers, closed all bulkhead doors, and disengaged the hand brake. Upon completion, they keyed up the train, entered Stop and Proceed mode, and performed a rolling brake test. informed the Alexandria Tower Interlocking Operator. RVO #1 was granted permission to move up to the signal. Once they arrived at the signal the MICC RTC gave the RVO a block to Franconia-Springfield Station.

After arriving at Franconia-Springfield Station, RVO #1 reversed ends and began their trip towards Downtown Largo Station. The RVO stated they had an intermittent loss of speed commands, which increased when they arrived near Reagan National Airport Station. RVO #1 stated they attempted to troubleshoot the train by keying down and keying back up. This alleviated the issue, until they reached Foggy Bottom-GWU Station. RVO #1 requested to have their ATC package recycled. RVO #1 informed the RTC of the issue and was met by a Car Equipment Mechanic at L'Enfant Plaza Station.

RVO #1 stated the Car Equipment Mechanic recycled the ATC package and rode the train for several stations to see if the issue persisted. They allowed the train to continue in service.

When asked, RVO #1 stated when they arrived at the train in Alexandria Yard the consist was already coupled. They inspected the cabinets and observed everything was closed and sealed.

The RVO stated they did not observe any indication lights on their Operator's console, and the train performed as designed. They believed there were no issues with the train at that time.

When asked, RVO #1 stated the handbrake was only applied to the car nearest the bump post. The handbrake was not applied to the lead car.

RVO #1 stated they did not observe any indications once they reached the main line, and their train ID was "727" leaving Alexandria Yard, towards Franconia-Springfield Station. The RVO stated they entered the Train ID prior to leaving Alexandria Yard.

When asked, RVO 12 stated the only special instructions they received from Alexandria Tower before leaving was to ensure the handbrake was disengaged before moving the train.

When asked, RVO #1 stated they did not see any indications on their Operator's console on their trip from Franconia-Springfield Station to Downtown Largo Station. They added that Car Equipment personnel boarded the train at L'Enfant Plaza and entered the Operator's cab.[1]

The RVO is familiar with where the indicator for ATP cut-out is located on the Operator's console. They added that the indicator housing is "red".

RVO #2

The Rail Vehicle Operator #2 (RVO) is a WMATA employee with 17 years of service and 11 years of experience as an RVO. RVO #1 holds a Roadway Worker Protection (RWP) Level 2 certification that expires in July 2025. Prior to the interview, the RVO responded to Safety fatigue assessment questions.

During the formal interview, RVO #2 stated they reported to work at 13:45 hours. At the time of the incident, they were coming off their meal break at 17:54 hours for their trip towards Franconia-Springfield Station. This was the RVO's third trip of the day and their first trip operating the incident train. When they arrived, the incident train was berthed on the platform at Downtown Largo Station.

RVO #2 stated they noticed that ATP was cut out once they arrived at Morgan Boulevard Station and were properly berthed with the train doors opened. The RVO keyed down the train to perform a lamp test. However, the ATP cut-out light remained illuminated. RVO #1 then opened up the ATC compartment and observed the ATP toggle switch was barred and sealed in the cut-out position. They stated that this caused them to panic, and they contacted the MICC RTC to inform them that they "had no protection." RVO #1 stated the RTC instructed them to change their Train ID to "444". The RVO reiterated to the RTC that they had "no protection" on the train. The RTC informed RVO #1 that a Car Equipment Mechanic was at Addison Road Station and instructed the RVO to change their Train ID to "444". RVO #1 informed the RTC that they needed protection because the train did not have ATP.

RVO #2 then remained in service to Addison Road Station. While enroute to Addison Road Station, the RVO informed the RTC that the train would have to be offloaded at Addison Road Station due to no ATP. RVO #2 stated they operated at a reduced speed to Addison Road Station. Once at the station, the Car Equipment Mechanic inspected the train and observed the ATP was locked in the cut-out position. They placed it in the normal position and determined the train could remain in service. RVO #2 continued operating the train in passenger service, then requested and took a personal break at Federal Center Station, where a Rail Operations Supervisor (ROS) assumed command of the train. RVO #1 resumed command of the train at Pentagon Station, in service to Franconia-Springfield Station. At Franconia-Springfield Station, the RTC instructed RVO #2 to remove the train from service at Van Dorn Station and bring it to Alexandria Yard.

When asked if they were instructed to offload their customers once they announced to the RTC that they had no ATP protection, while they were properly berthed at Morgan Boulevard Station, RVO #1 stated they did not receive any instructions to offload customers. They were instructed to change their Train ID to "444".

[1] The Operator would not see any indication because at this point the car with the ATP cut out was on the trailing pair while traveling from Franconia-Springfield Station to Downtown Largo Station.

When asked if the RVO was given an Absolute Block to Addison Road Station, RVO #2 stated they did not receive an Absolute Block.

When asked if the RVO observed the ATP cut-out button illuminated prior to leaving Downtown Largo Station, RVO #2 stated they arrived two (2) minutes prior to their departure time, were concentrating on their lunar signal and rail alignment, and did not notice the ATP cut-out button illuminated.

When asked, RVO #2 stated they did not request an Absolute Block to Addison Road Station. They felt panicked and asked for the RTC to "protect" them.

RVO #1 also stated they have experience as a Rail Line Platform Instructor.

Radio Rail Traffic Controller (RTC)

The Radio Rail Traffic Controller (RTC) is a WMATA employee with 23 years of service and 11 total months of experience as an RTC. The Radio RTC holds an RWP Level 4 certification that expires in April 2025. Before the interview, the Radio RTC responded to a series of Safety fatigue assessment questions.

During the formal interview, the Radio RTC stated on the date of the incident they were assigned to work as the Buttons RTC. However, at the time of the incident, their partner was inputting Maximo incident reports, and they were operating as both the Buttons and Radio RTC. The RTC stated the RVO of the incident train was leaving Morgan Boulevard Station when they contacted the RTC and asked if Car Equipment was at Addison Road Station. The Radio RTC stated there was Car Equipment personnel at Addison Road Station and asked the RVO to state their concerns. The RVO stated that they had no "protection". The Radio RTC asked the RVO for their lead car number, and confirmed Car Equipment personnel was at Addison Road Station.

The RVO repeated that they had no protection and would be offloading once they arrived at Addison Road Station. The RTC instructed the RVO to recycle their train ID once they arrived on the platform at Addison Road Station.

The Radio RTC stated from their experience when they have observed trains indicating ATP has been cut-out, they would troubleshoot the train by having the RVO recycle the train's ID and Destination Code, and normally the ATP cut-out indication would disappear.[2]

The RTC observed via their AIMS screen that the ATP cut-out indication was showing for the train. The Radio RTC instructed the RVO to enter Addison Road Station at a restricted speed, of no more than 15 MPH. The Radio RTC stated the RVO did not respond to their instructions. Once the train arrived at Addison Road Station the Car Equipment Mechanic inspected the train and informed the Radio RTC that ATP was sealed in the cut-out position. The Car Equipment Mechanic cut ATP back in and determined the train was good for service.

The RTC informed the Assistant Operations Manager (AOM) and was instructed by the AOM to keep the train in service.

[2] This statement cannot be substantiated.

When asked if the RTC experienced any radio transmission issues. They stated they did not but were unsure if the RVO had any transmission difficulties because they did not respond when they called for them over the radio.

When asked the Radio RTC stated the RVO initially contacted them after leaving Morgan Boulevard Station, en route to Addison Road Station, and therefore unable to offload customers at that location.

When asked if the Radio RTC provided a permissive or absolute block to Addison Road Station, the RTC stated the train was already in approach to Addison Road Station, so they instructed the RVO to enter the station at a restricted speed, no more than 15 MPH, and did not provide an absolute block to the 8-car marker.

The Radio RTC stated the RVO never stated that ATP was “cut-out.” They only stated that they did not have any “protection”. The Radio RTC stated they observed an ATP cut-out indication for the train on their AIMS screen. This was why they instructed the RVO to recycle the train when they arrived at Addison Road Station. The Radio RTC stated if the RVO had stated ATP was cut out they would have granted an absolute block to the station.

Appendix B – Photographs

Figure 6 - Depicts ATP Cut in.

Figure 7 – Depicts ATP Cut out.

Appendix C – Work Orders

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

Work Order #: 19064975
Type: CM

19064975

Status: COMP
11/13/2024 14:03

Work Description: NO BRAKES OFF NO TROUBLE LIGHTS, 12/11, N01, CMD, NBRO, 604
Job Plan Description:

Work Information

Asset: R3057	3057, RAIL CAR, BREDA, 3000 AC, B CAR	**Owning Office:** CMNT-CMNT-CMNT		**Parent:**	
Asset Tag: R3057		**Maintenance Office:** CMNT-WFCH-INSP		**Create Date:**	11/12/2024 05:58
Asset S/N: 3057		**Labor Group:** CMNT		**Actual Start:**	11/12/2024 05:59
Location: 2494	K99, WEST FALLS CHURCH YARD	**Crew:**		**Actual Comp:**	11/13/2024 14:03
Work Location: 2494	K99, WEST FALLS CHURCH YARD	**Lead:**		**Item:**	L18060002
Failure Class: CMNT007	FRICTION BRAKE	**GL Account:**	WMATA-02-33370-50499160-041-**********-*****-OPR**		
Problem Code: 1228	BRAKES NOT RELEASING / NO "BRAKES OFF"	**Supervisor:**	[redacted]	**Target Start:**	
Requested By:		**Requestor Phone:**		**Target Comp:**	
Chain Mark Start:		**Chain Mark End:**		**Scheduled Start:**	
Create-Mileage: 2663027.0		**Complete-Mileage:** 2663027.0			

Task IDs

Task ID						
10	TRAINS IN YARD, CONSIST OF R3056/57, R3016/17, and r3082/83. SEE DETAILS. NO BRAKES OFF FAULT ON R3057, REST OK. DOWNLOAD VMS EXT. FILES FOR R3056, R3016 AND R3082. ALSO DOWNLOAD H1A EVENTS LOGS FRONT AND REAR TRUCKS FOR R3056 AND R3057 FOR CMOR IIT FURTHER ANALYSIS. NFW. 000-300-E00 SUBSYSTEM; FRICTION BRAKE; 2K/3K/					
Component: 6K/7K	**Work Accomp:** DOWNLOADED	**Reason:** INOPERATIVE	**Status:** COMP	**Position:**	**Warranty?:** N	
20	C/W IIT recommendations. Key up 3057, placed master controller in P5. Checked 3056 KA box KATB2-21 and 2-22 measuring 37V against the car body. When wiggle DCKR relay, intermittent lost 37V and also lost brakes off. Found DCKR relay retain wire loose and not secured. Inspected the relay base ok. Adjusted the retain wire and secured the DCKR. Cycled master controller many times good brakes off.					
Component: 000-300-A02-003 RELAYS; KA BOX; 2K/3K/6K/7K	**Work Accomp:** SECURED	**Reason:** LOOSE	**Status:** COMP	**Position:** 463	**Warranty?:** N	

Actual Labor

Task ID	Labor		Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost
10	[redacted]	[redacted]	11/12/2024	11/12/2024	07:00	11:30	Y	04:30	00:00	[redacted]
20	[redacted]	[redacted]	11/13/2024	11/13/2024	06:30	11:00	Y	04:30	00:00	[redacted]
20	[redacted]	[redacted]	11/13/2024	11/13/2024	06:30	11:00	Y	04:30	00:00	[redacted]
							Total Actual Hour/Labor:	13:30	00:00	[redacted]

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Document 1 – Work Order for rail car 3057, page 1 of 2.

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

Work Order #: 19064975
Type: CM

19064975

Status: COMP
11/13/2024 14:03

Work Description: NO BRAKES OFF NO TROUBLE LIGHTS, 12/11, N01, CMD, NBRO, 604
Job Plan Description:

Related Incidents

Ticket	Description	Class	Status	Relationship
8823236	NO BRAKES OFF NO TROUBLE LIGHTS, 15/11, N01, CMD, NBRO, 604	SR	RESOLVED	ORIGINATOR

Failure Reporting

Cause		Remedy		Supervisor	Remark Date
2509	NOT APPARENT AT THIS LEVEL OF MAINTENANCE	2825	REPAIRED	[redacted]	11/13/2024
Remarks:	C/W IIT RECOMMENDATIONS, SECURED DCKR RELAY AND ADJUSTED IT LOOSE RETAIN. TRAIN GOOD FOR SERVICE.				

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Document 2 – Work Order for rail car 3057, page 2 of 2.

Appendix D – Corrective Actions

LESSONS LEARNED | CMNT - WIDE | Revision 00 Date: 11/15/2024

ATP Cut Out Switch Inspections

What happened?

On the afternoon of Thursday November 14th, 2024, the operator of a Blue Line train with lead car 3057 notified Metro Integrated Command & Communication (MICC) that their train "had no ATP protection" and requested assistance from Car Maintenance.

Closer examination of the train revealed the Automatic Train Protection (ATP) cut out switch had been sealed in the CUT-OUT position. In this configuration, the train has no overspeed protection, no ability to maintain safe distance from the train ahead of it, and no ability to detect broken rails. This is an extremely dangerous condition that could have led to a collision or derailment, putting our colleagues and customers at serious risk of injury or death.

The ATP cutout switch may only be used after receiving authorization from the MICC (or Interlocking Operator, when in yards) and all train movements in this configuration must be made at restricted speed and in close coordination with the MICC (or Interlocking Operator) to assure safe separation from the train ahead. For more details, see Metrorail Operating Rule 8.17.9

How did this happen?

A preliminary investigation found the married pair had been out of service with 'no brakes off' symptoms on the previous day. The ATP cutout switch had been used during mainline troubleshooting of the brake failure, resulting in the switch bar (pin) being misplaced.

After repairs had been completed, the technician performing Daily Inspection (DI) installed a new switch bar and seal after properly identifying the missing seal. Unfortunately, the switch bar was installed in a way that caused the ATP cutout switch to remain in the CUT-OUT position. After installing the new switch bar, the technician did not key up or take any other steps that would have verified the switch bar had been installed correctly.

Additionally, the Rail Vehicle Operator (RVO) that took the car out of the yard after the DI did not detect the cutout condition during their pre-trip inspection. The ability to move the train in the yard without entering stop-and-proceed mode could have provided a secondary indication that ATP was cut out. Finally, the Rail Traffic Controller monitoring OPS2 did not detect the cut-out symbol for this train on their console display.

Discuss any safety concerns with your supervisor, the CMNT Department Safety Coordinators, or the Safety Hotline

M metro CMNT Office of Car Maintenance

Page 1 of 2

LESSONS LEARNED | CMNT - WIDE | Revision 00 Date: 11/15/2024

What can we do better?

This incident demonstrates how something as simple as a switch can be easy to overlook but under the right circumstances can lead to potentially catastrophic consequences.

Assuring trains are properly configured for safe operation is a team effort that requires diligence from personnel across Car Maintenance, Rail Transportation, and the MICC. Each group plays a critical role in promoting operational safety. The specific expectations for Car Maintenance when sealing and inspecting an ATP cutout switch are:

- Verifying the ATP cutout switch is in the up, or CUT-IN, position.
- Verifying the switch bar (pin) is correct for the application and inserted correctly.
- Verifying the copper wire of the seal is threaded through the switch bar (pin) and the lead disc.
- Properly crimping the lead disc to assure a tamper-resistant seal is made.
- Functionally checking the ATP cutout *after* installing the seal by performing a Daily Safety Test (DST).

The specific lesson learned for Car Maintenance is that we need to be extra diligent in checking every car's ATP cutout switch during DI and after installing switch bars and seals. We must verify safety critical cutout and bypass functions are configured correctly through both visual and functional checks.

An example of a properly installed ATP cutout switch bar (pin) and seal is provided below.

Talk through any questions or concerns regarding this Lessons Learned bulletin with your supervisor.

Discuss any safety concerns with your supervisor, the CMNT Department Safety Coordinators, or the Safety Hotline

metro CMNT Office of Car Maintenance

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M E M O R A N D U M

SUBJECT: Train Operations with ATP Cut Out DATE: November 15, 2024

FROM: [redacted]
Metro Integrated Command and Communication (MICC)

TO: MICC Rail Section Staff

As a reminder, Mode 3 (ATP Cut Out) operation shall be treated by all employees as a serious and potentially hazardous condition, which must only be used as a last resort when to moving a Class 1 rail vehicle.

RTC's observing an AIMS indication of a train operating with ATO cut out shall contact the train operator immediately and verify the switch position of the ATP cut out. If it is determined that the train has a mechanical problem preventing normal train operation:

- The train operator shall be instructed to immediately offload the train or at the next station if the train is between stations.
- The train shall only be moved after confirmed clear of customers and under an absolute block with the speed restricted to 15mph.
- Dispatch CMNT and/or Rail Operations Supervisor to intercept and investigate.
- The incident train shall be removed from service and operated to the nearest Rail Yard.

Rail 1's and Rail 2's shall ensure that the occurrence is properly documented in MAXIMO. Rail 1's shall brief out on the contents of this Memorandum in all Rail 1 daily shift briefings until further notice.

The below graphic illustrates the AIMS indication of a train in Mode 3 ATP cut out operation:

Washington Metropolitan Area Transit Authority

ATP Cut Out	White ID	
Normal	Black ID	

Appendix E – Why-Tree Analysis