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WMSC Commissioner Brief: W-0195 – Evacuation for Life Safety Reasons – Dupont Circle Station – July 30, 2022

Prepared for Washington Metrorail Safety Commission meeting on January 24, 2023

Safety event summary:

Metrorail evacuated riders from stations and Red Line trains and later had to make extensive repairs in the area between Woodley Park-Zoo/Adams Morgan and Dupont Circle stations due to electrical arcing from wall-mounted cables that began late on July 30, 2022, and continued for more than six hours.

The event demonstrated gaps in Metrorail's emergency preparedness, incident response and coordination processes and systems. These included Metrorail's lack of a systemic approach to ensure timely understanding of the event as it unfolded that is necessary to ensure successful implementation of an effective, unified, and coordinated response. Assumptions made that were contrary to available information, specifically repeated descriptions of the event as an arcing insulator, extended the duration and likely increased the severity of this event. In addition to the passenger train in the area of smoke during this event and passengers evacuated from another train and Dupont Circle Station due to smoke that entered the station from the tunnel, the event caused significant damage, in part due to its duration, which led to an extended period required to make repairs.

A more detailed timeline, as well as corrective actions specific to this event and other required corrective actions related to previous WMSC findings and investigation, are provided below. Generally:

- After the arcing and smoke had triggered a fire alarm in a drainage pumping station (DPS) and led to a track circuit unexpectedly displaying as occupied (down track circuit), a Train Operator who did not respond to the Rail Operation Control Center's initial directions to hold at Woodley Park Station due to the down track circuit continued their train, with passengers aboard, toward the location of the active fire alarm and down track circuit. The Train Operator may not have heard the communication to hold.
- At this point, Metrorail personnel did not treat the fire alarm triggered by the arcing and smoke as a report of smoke, and had not identified that the drainage pumping station was in the tunnel between Woodley Park and Dupont Circle stations, and instead treated the alarm as occurring in a non-public part of the Dupont Circle Station. Metrorail initially began seeking to determine whether it was a false alarm.
    - Metrorail as an organization did not effectively recognize and act upon the location of the alarm, as alarms provide information such as a room number, but personnel do not necessarily know the locations of those room numbers.
    - The DPS alarm was labeled for personnel in the ROCC as a Dupont Circle Station alarm. In fact, it is located in the tunnel. This is not apparent on information screens used by ROCC controllers, and would require a deep systems characteristics knowledge to identify without review of drawings and documents.
    - The Maintenance Operations Center (MOC) correctly identified and reported the location of the alarm to Washington, D.C. first responders after reviewing records that specified the location of each room. However, other personnel later reported the alarm to first responders in a separate, uncoordinated

call as being associated with the station, and Metrorail's response was not based on the location of this alarm. This occurred despite MOC informing the Button Controller later in the event of the specific location of the alarm.

  - Metrorail did not identify that the down track circuit could be related to the fire alarm during any part of the initial response.
  - Metrorail appears to have first assumed that the fire alarm was a non-issue, or at least that it did not impact train movement, despite this alarm being in a facility in the tunnel area.

- The Train Operator reported that they had lost speed commands in the tunnel between stations (this was due to the down track circuit caused by the arcing and smoke that had set off the fire alarm. Metrorail personnel had not identified that the alarm and down track circuit were potentially linked). The Radio Rail Traffic Controller directed the Train Operator to continue toward Dupont Circle Station and to conduct a track inspection. This is contrary to Metrorail procedures requiring trains conducting a track inspection to be done only by operators of trains without passengers. The Train Operator continued to operate closer to the arcing location, then reported seeing sparks coming from the tunnel wall.
- After the Train Operator moved to the opposite end of the train, the Train Operator waited several minutes for required permission from the ROCC to move the train away from the smoke. The Radio Rail Traffic Controller spent this time responding to other personnel at other locations who were not directly involved in the emergency. This other communication led to a delay in moving the train and the passengers on board back to Woodley Park Station.
- Metrorail did not activate station and tunnel ventilation fans when the train operator reported this electrical arcing. Partly, this was due to problems in communication within the ROCC between rail controllers and the fan desk, including a controller with difficulty finding the correct number to call to reach personnel on the other side of the room. The fans were activated only after the train had returned to Woodley Park Station.
- Rail 1, the operational leader of the ROCC during a given shift, did not remain in their position during this event and instead was directly instructing controllers at their console. Due to this action that did not follow the ROCC organizational and procedural procedures, the Fire Liaison Officer and Metrorail's Mission Assurance Coordinator (MAC) did not have consistent, accurate real time information exchanges with operations personnel.
- Despite the Train Operator having reported that the electrical event was on the wall of the tunnel, supervisory personnel in the ROCC and later MTPD personnel and others on scene stated that the event was an arcing insulator, and responded accordingly. Third rail power was de-energized, and Metrorail's maintenance personnel that deal with third rail power were dispatched. Metrorail's Emergency Response Team accessed the roadway for the first time approximately 1.5 hours after the arcing began. Metrorail did not dispatch the separate personnel responsible for other power systems until after other personnel described an 'explosion.' Metrorail did not take any steps to de-energize other non-third rail power sources in the area until approximately three hours after the arcing began.

- D.C. Fire and EMS correctly identified that Metrorail's third rail power de-energization had not addressed the electrical safety hazard in the area, even after a "red tag" was issued that demonstrated electrical breakers supplying third rail power had been "racked out" or disconnected from the system.
- After Metrorail's personnel responsible for non-third rail power responded, they had difficulty determining how to cut the power to the arcing location, including difficulty identifying the breaker that should be used to de-energize this area. They did not cut power to all breakers in the area. Eventually, these personnel severed a connection at another junction box to cut power, stopping the arcing more than six hours after it began.

Timeline

At approximately 9:07 p.m., the Rail Operations Control Center (ROCC) received an active fire alarm from the Dupont Circle Drainage Pumping Station and dispatched an Office of Rail Transportation (RTRA) Supervisor to Dupont Circle Station. The Drainage Pumping Station is a significant distance from the station and is actually between Dupont Circle and Woodley Park stations. At 9:10 p.m. the Rail Traffic Controller directed the Train Operator of Train 108 to hold the train at Woodley Park Station. The Train Operator did not respond. The Train Operator acknowledged the Controller's second attempt to contact them at 9:11 p.m., however this was only after the Train Operator had already departed Woodley Park Zoo/Adams Morgan Station enroute to Dupont Circle Station. The Train Operator stated they had no speed commands. The Controller instructed the Train Operator to perform a track inspection and gave a permissive block to Dupont Circle Station. A permissive block is a section of clear track ahead of a train in the established direction of traffic up to a specific point into which no other train is permitted. This directive is in violation of Operating Procedure 3.172 Hazardous Track Condition Inspection, which prohibits passenger occupied trains from being used to perform inspections.

At 9:12 p.m., the Maintenance Operations Center reported the active fire alarm at the Dupont Circle DPS to the Washington, D.C. 911 call center, the Office of Unified Communications requesting a District of Columbia Fire and Emergency Medical Services (DCFEMS) response. This call provided the correct address for the DPS, which is not at the Dupont Circle Station, but instead is part way between the Dupont Circle and Woodley Park stations.

At 9:13 p.m., while conducting the track inspection with passengers on the train, the Train Operator of Train 108 reported to the Controller that there were sparks emitting from the tunnel wall. At 9:17 p.m., the ROCC Assistant Operations Manager made a second, uncoordinated call to the Office of Unified Communications, reporting an active fire alarm at Dupont Circle Station. There were later conversations between the MOC desk and the Button Rail Traffic Controller where the MOC again specified that the alarm location was the DPS. The response continued to be focused on the station.

At 9:19 p.m., the Dupont Circle Station Manager reported over the radio that there was smoke entering the station from the tunnel.

At 9:19 p.m. Train 103, carrying RTRA Supervisor #1 and passengers arrived at Dupont Circle Station from Farragut North Station. RTRA Supervisor #1 reported that there was smoke in the tunnel on Track 1. The Controller instructed Train 103 Train Operator to turn off the environmental system for the entire train and to offload riders at Dupont Circle Station. At 9:21 p.m., after a rail controller eventually called the Maintenance Lead, the Maintenance Operations Center

Plant Desk activated tunnel ventilation fans in the area of Dupont Circle. The Station Manager was instructed to evacuate the station at approximately 9:23 p.m.

At 9:24 p.m., the Controller instructed Train 108's Operator to reverse ends. After the Train Operator reversed ends to travel in the opposite direction and informed the Controller, the Train Operator waited several minutes for a response from the Controller. The train remained near the location of the electrical arcing and smoke. The Controller then provided a permissive block back to Woodley Park Station where customers would be offloaded.

At 9:27 p.m., RTRA Supervisor #1, who had been appointed On-Scene Commander by the ROCC and who was in Dupont Circle Station, reported that they did not see any arcing from the platform and that smoke was dissipating in the station. RTRA Supervisor #1 boarded out of service Train 103, which performed a track inspection between Dupont Circle and Woodley Park Zoo/Adams Morgan stations on Track 2.

DCFEMS personnel arrived at the north entrance of Dupont Circle Station at 9:32 p.m. RTRA Supervisor #1, aboard Train 103, reported heavy smoke and fire at a location between Dupont Circle and Woodley Park stations, and advised the ROCC that Tracks 1 and 2 were not safe for train service. Train service was suspended at Dupont Circle Station.

At 9:46 p.m., MTPD personnel reported seeing an arcing insulator from the platform at Dupont Circle Station. Based on available information, and protocols for responding to electrical arcing events, DCFEMS waited for Metrorail's Emergency Response Team (ERT) before entering the roadway. Metrorail had not assigned anyone representing Metrorail maintenance personnel to specifically support the incident commander by providing and relaying necessary information, and did not do so at any point during the event. After ERT arrived at Dupont Circle Station at 9:56 p.m., DCFEMS personnel determined, due to the presumed electrical fire source, which WMATA personnel are responsible for, and information provided by Metrorail, that they would not enter the roadway. DCFEMS departed the scene at 10:23 p.m.

ERT and Automatic Train Control Maintenance (ATCM) did not enter the roadway to conduct inspections until 10:39 p.m. They were granted foul time protection after gathering their equipment, reaching the platform, and a period of discussion involving ROCC managers about the required level of roadway worker protection to access the roadway during an emergency. At 10:49 p.m., ERT unsuccessfully attempted to contact the ROCC via radio, before reaching the ROCC at 10:51 p.m. to report that there was still arcing and that they needed fire department assistance.

The ROCC instructed ERT to return to the platform. At 10:56 p.m., the ROCC Assistant Operations Manager requested DCFEMS respond back to Dupont Circle Station.

At 11:01 p.m., while returning to the platform, ERT reported that a cable attached to the tunnel wall had detached, was sparking, and that they could not safely extinguish it.

DCFEMS personnel arrived back at Dupont Circle Station at approximately 11:07 p.m. DCFEMS waited for power personnel before entering the roadway to ensure the safety of responding personnel. At 11:23 p.m., ERT reported an apparent "explosion" in the tunnel. Low Voltage Electrical Maintenance personnel, who are generally responsible for electrical work related to non-third rail power (low voltage is a relative term applied by Metrorail), were dispatched at 11:26 p.m.

RTRA Supervisor #1 reported that smoke had dissipated in Dupont Circle Station at 11:30 p.m. Traction Power Maintenance (TRPM) personnel, who are generally responsible for electrical work related to third rail power, requested a Red Tag Outage at 11:35 p.m. A Red Tag Outage is used for the removal of third rail power when there is work being done on or in contact with the third rail. It applies specifically to third rail power, not to other power supplied in a given area.

At 12:21 a.m. on Sunday July 31, 2022, nearly three and a half hours into the event, Office of Systems Maintenance, Low Voltage Power Section (LVEM) personnel arrived at the station. LVEM identified the source of the fire as an electrical junction box on Track 1. Metrorail personnel on scene did not address and were not able to disconnect the power source through the breaker that is designed to be used for this purpose. The LVEM personnel did not have or gather the information necessary to determine what equipment the junction box near the location of the arcing was supplying power to, which meant they could not identify the breaker to use to de-energize the specific box. They did not de-energize all breakers in order to stop the arcing, smoke and damage. Instead, LVEM later disconnected power from another junction box approximately 600 feet away by removing a cable there.

DCFEMS departed at 3:35 a.m. Office of Track and Structure personnel made repairs and at 6:02 a.m., third rail power was reenergized.

Damage as a result of this event included junction boxes, three amplifiers and approximately 1400 feet of cable. The damaged cables included those related to automatic train control and signaling, low voltage power, and communications. As a result of damage to the communications system cables, personnel reported experiencing poor radio transmission quality during the response to this event.

Probable Cause:

The probable cause of this event was a prolonged overloaded circuit powering an electrical junction box that consumed Metrorail system components resulting from Metrorail's ineffective inspection and maintenance practices. Contributing to the ineffective, insufficient, and lengthy response were deficiencies in Metrorail's safety management system, including deficiencies in carrying out incident command processes, deficiencies in interdepartmental coordination, and deficiencies in safety promotion and supervisory and managerial oversight required to ensure a holistic, complete and timely response to, and necessary ongoing steps to reduce the risk of, events involving arcing, fire or smoke.

Corrective Actions:

- Due to this investigation:
    - Completed
        - The ROCC issued a memorandum on July 31, 2022, reminding personnel that trains must be out of service and without passengers to be used for a track inspection.
        - Communication cables repaired and radio checks completed following the opening of the area affected by the tunnel fire.
        - Memorandum issued regarding collaborative and cohesive working relationship between ROCC Operations Manager and the Mission Assurance Coordinator.

        - Three After Action Review information gathering sessions were conducted with involved departments with focus on: The Customer Experience, Emergency Response and Coordination of Damage Assessments. Topic discussions included improvement in the coordination of the on-scene response, damage assessments, repair coordination, restoration of service activities, and customer communications.
        - The ROCC conducted an internal hot wash, reviewed audio radio communication and procedural compliance for track inspections. ROCC also shared information gathered from the Office of Emergency Preparedness' After-Action Report with staff.
    - Ongoing
        - LVEM will visually inspect the electrical infrastructure in underground tunnels to identify electrical hazards such as loose cables, broken receptacle covers, corrosion, and water leaks on or near electrical equipment.
        - LVEM Inspectors will document issues found during the inspections, taking pictures, and noting chain markers. Management to create work orders to document correction or mitigation of problems found.
        - Evaluate procedures for dispatching maintenance personnel to event scenes and make necessary revisions to ensure all required personnel are dispatched at the outset of the event. Training and personnel awareness to the requirement of a Maintenance Commander (Lead) in accordance with SOP 1A.
- Other related corrective action plans (CAPs)
    - In development
        - C-0214 is being created to address the 2022 communications systems audit finding that Metrorail does not have adequate supervisory oversight and safety promotion to ensure that approved preventative maintenance inspections (PMI) are properly completed to ensure the safety of the rail system.
        - C-0215 is being created to address a finding from the 2022 communications systems audit that found that Metrorail does not have sufficiently detailed instructions and procedures specifying how to inspect and maintain each communications asset. WMATA must develop standard PMI forms, procedures, and instructions for every communications system.
        - C-0216 is being created to address the 2022 communications systems audit finding that Metrorail is closing preventative maintenance work orders without correcting known deficiencies, which does not comply with its Systems Maintenance (SMNT) Maintenance Control Policy. Under this CAP WMATA must develop and implement additional training, supervisory oversight and safety promotion to ensure adherence to their SMNT Maintenance Control Policy, Section 25.
    - Ongoing
        - CAP C-0162 was created to address a 2021 emergency management and fire and life safety audit finding that Metrorail does not consistently follow the incident command system (ICS) structure and has procedures that do not comply with National Incident Management

System (NIMS)/ICS requirements. For this CAP, which has an expected completion date of January 2025, WMATA has committed to creating and implementing an Incident Management System Framework in alignment with the NIMS/ICS.

- CAP C-0163 address a 2021 emergency management and fire and life safety audit finding that Metrorail created and implemented the Mission Assurance Coordinator position without documented training, responsibilities, communication or coordination, and without adequate staffing to ensure other emergency management and preparedness activities were not interrupted. Metrorail must define the roles, responsibilities, authorities, and tasks of each position in the emergency management and fire and life safety process. This CAP is due for completion in August 2023.
- CAP C-0166 addresses the 2022 Audit of Emergency Management and Fire and Life Safety Programs finding that Metrorail's calls to public safety answering points (911 call centers) are inconsistent, incomplete and contribute to delayed or ineffective emergency response. Metrorail must, in consultation with 911 call centers and first responders in the region, develop a script for Metrorail 911 calls and establish recurring training on this script and associated procedures, and must specify the personnel who are required to receive this training. This CAP is due for completion in February 2024.

o NTSB R-16-16: The National Transportation Safety Board recommended Metrorail install and maintain a system that will detect the presence and location of fire and smoke throughout the WMATA tunnel and station network. Metrorail has been conducting a pilot of smoke detectors in tunnels. The NTSB classifies this recommendation as "Open – Acceptable Response."

WMSC staff observations:

Metrorail recently announced a reorganization that some Metrorail personnel have described as combining power personnel for both third-rail power and other systems under one department. The WMSC will monitor Metrorail's overall actions in this and other areas that will require multiple procedural revisions, including as it relates to the level of preventive maintenance carried out on power systems that are not related to third-rail power. Metrorail leadership spoke to the WMATA Board about this issue of preventive maintenance for non-third rail power systems in September during an update on this event.

Regarding the potential opportunity to add specific alarms for rail controllers to indicate when smoke and fire alarms activate in tunnel locations between stations, Metrorail personnel expressed concerns regarding the feasibility of carrying out such a change given current capacity to carry out other necessary information technology upgrades. Metrorail is making other safety improvements to these systems to address safety gaps Metrorail introduced during the creation and implementation of a new "Power Desk," which Metrorail currently refers to as the "Power Operations Center."

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

FINAL REPORT OF INVESTIGATION A&I E22451

Date of Event:	July 30, 2022
Type of Event:	Evacuation for Life Safety Reasons – Fire/Smoke
Incident Time:	22:07 Hours
Location:	Between Woodley Park Station and Dupont Circle Station – CM A1 80+00
Time and How received by SAFE:	21:07 Hours – SAFE/MAC
WMSC Notification Time:	22:42 Hours
Responding Safety Officers:	WMATA: OEP, OSI WMSC: N/A Other: N/A
Rail Vehicle:	Train ID 108 **L**6147/46X6094/95X6118/19**T**
Injuries:	None
Damage:	Significant fire damage to low-voltage electrical equipment, communications, and fiber optic equipment
Emergency Responders:	Metro Transit Police Department (MTPD), DC Fire and Emergency Medical Services (DCFEMS)
SMS I/A Incident Number:	20220730#101881MX

Between Woodley Park Station and Dupont Circle Station at CM A1 80+00
Evacuation for Life Safety Reasons

July 30, 2022

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Abbreviations and Acronyms

AMF	Advanced Mobile Flagger
AOM	Assistant Operations Manager
ARS	Audio Recording System
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CENV	Railcar Engineering Vehicles
CMOR	Office of Chief Mechanical Officer
DCFEMS	District of Columbia Fire and Emergency Medical Services
DPS	Drainage Pumping Station
MOC	Maintenance Operations Center
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
OEP	Office of Emergency Preparedness
OSI	Office of Safety Investigations
ROIC	Rail Operations Information Center
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
ROCC	Rail Operations Control Center
SAFE	Department of Safety
SMS	Safety Measurement System
TRST	Office of Track and Structures
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

On Saturday, July 30, 2022, at approximately 21:07 hours, the Dupont Circle Drainage Pumping Station (DPS) fire alarm activated. This fire alarm indication relays to the Fire Alarm panel at Dupont Circle Station. In response, the Rail Operations Control Center (ROCC) Radio Rail traffic Controller (RTC) dispatched an Office of Rail Transportation (RTRA) Rail Supervisor #1, located at Metro Center Station, to respond to Dupont Circle Station for the active fire alarm.

At approximately 21:10:25 hours, the Radio RTC attempted to contact and hold Train ID 108, located at Woodley Park Station, track 1, but no response was received from the Train Operator. Train ID 108 departed Woodley Park Station at approximately 21:10:40 hours. After being contacted again by the Radio RTC, at approximately 21:11 hours, the Train Operator of Train ID 108, now located outside of Woodley Park Station heading in the direction of Dupont Circle, track 1, responded to the RTC and reported a loss of speed commands.

The Radio RTC instructed the Train Operator to perform a track inspection with a permissive block to Dupont Circle Station. At approximately 21:12 hours, the Maintenance Control Center (MOC) contacted DC Fire and Emergency Medical Services (DCFEMS) and reported an active fire alarm at the Dupont Circle DPS (A1 112+25).

Initial Report and First Emergency Responder Request

After moving the train, the Train Operator contacted the Radio RTC, reporting sparks emitting from the wall at approximately 21:13 hours. The Radio RTC instructed the Train Operator to reverse ends. Train ID 108 was given an absolute block to Woodley Park Station, track 1, where the train was offloaded. At approximately 21:17 hours, the ROCC Assistant Operations Manager (AOM) contacted DCFEMS and reported an active fire alarm at Dupont Circle Station.

Responding to the fire alarm, the Station Manager at Dupont Circle notified ROCC that smoke was entering the station from behind the end gate. At approximately 21:19 hours, Train ID 103 arrived at Dupont Circle Station, track 2, with Rail Supervisor #1 onboard. Rail Supervisor #1 reported observing smoke in the tunnel on track 1. The Radio RTC instructed the Train Operator to turn off the environmental system in the entire consist, gave a permissive block to service the platform at Dupont Circle Station, track 2, and instructed the Train Operator to offload the train.

At approximately 21:24 hours the Radio RTC appointed Rail Supervisor #1 as the On-Scene Commander and instructed them to reboard Train ID 103 to prepare for a track inspection. The Rail Operations Information Center (ROIC) requested shuttle bus services. At approximately 21:27 hours, the tunnel fans were activated, and Rail Supervisor #1 reported that the smoke was dissipating; they did not see an arcing insulator. At approximately 21:29 hours, the Radio RTC instructed Train ID 103 to perform a track inspection between Dupont Circle and Woodley Park Stations, track 2, with Rail Supervisor #1 aboard. At approximately 21:30 hours, ROIC canceled shuttle bus services.

At approximately 21:31 hours, DCFEMS arrived at the North Entrance at Dupont Circle Station. MTPD and DCFEMS established Unified Command. At approximately 21:33 hours, Rail

Supervisor #1 reported observing fire and heavy smoke at Chain Marker (CM) A1 088+00 and reported that it was not safe for train movement on tracks 1 and 2.; Train service was suspended at Dupont Circle Station. At approximately 21:35 hours, the Station Manager at Dupont Circle Station was instructed to evacuate the station. At approximately 21:36 hours, ROIC made another request for shuttle bus services.

At approximately 21:46 hours, MTPD personnel located on the platform at Dupont Circle Station advised that an arcing insulator was observed from the platform and DCFEMS elected to wait for the arrival of the Emergency Response Team (ERT) before entering the roadway. At approximately 21:56 hours, Incident Command reported that ERT arrived at Dupont Circle Station.

At approximately 22:09 hours, the Office of Automatic Train Control Maintenance (ATCM) arrived at Dupont Circle Station. The Radio RTC appointed Rail Supervisor #1 as the RTRA Forward Liaison. At approximately 22:11 hours, ERT contacted the Radio RTC and advised that they were on the scene at Dupont Circle Station, taking equipment to the platform. At approximately 22:17 hours, DCFEMS advised that they would not enter the roadway with ERT and subsequently cleared the scene.

At approximately 22:39 hours, the Radio RTC granted permission to ATCM and ERT to enter the roadway under Foul Time to perform an inspection. At approximately 22:47 hours, the Radio RTC advised that third rail power was de-energized. At approximately 22:51 hours, ERT contacted the Buttons RTC via landline and reported that the fire was still burning at CM A1 081+00; DCFEMS was not on the roadway and requested DCFEMS assistance. ERT was instructed to return to the platform.

Second Dispatch for Emergency Responders (120 minutes in the incident)

At approximately 22:56 hours, the ROCC AOM contacted DCFEMS and requested they return to Dupont Circle Station. At approximately 22:57 hours, ERT advised that the fire was located between A1 081+00 to 083+00. At approximately 23:01 hours, ERT contacted ROCC via landline and reported that a cable attached to the tunnel wall had broken loose and was sparking. They could not safely extinguish the fire.

At approximately 23:07 hours, Incident Command reported that DCFEMS Engines 1 and 9 were on the scene. At approximately 23:14 hours, Incident Command advised that permission was granted for DCFEMS to enter the roadway. At approximately 23:15 hours, Rail Supervisor #2 informed ROCC that DCFEMS would not enter the roadway until Power personnel arrived. At approximately 23:19 hours, ERT with DCFEMS requested to verify that the third rail's power was de-energized on track 2.

At approximately 23:23 hours, ERT reported an explosion within the tunnel. At approximately 23:24 hours, Incident Command advised that Traction Power Maintenance (TRPM) personnel were on the scene. At approximately 23:26 hours, Low Voltage Electrical Maintenance (LVEM) personnel were dispatched to Dupont Circle Station. At approximately 23:30 hours, Rail Supervisor #1 reported that the smoke had dissipated. At approximately 23:35 hours, TRPM personnel requested a Red Tag Power Outage.

On Sunday, July 31, 2022, at approximately 00:31 hours, Incident Command reported that LVEM personnel arrived at Dupont Circle Station. At approximately 02:34 hours, Incident Command turned over the scene to ERT, and Incident Command was dissolved. At approximately 03:35 hours, DCFEMS departed Dupont Circle Station. At approximately 03:46 hours, ERT reported that Low Voltage Power Personnel could diffuse the sparking of the cable, and all personnel was clear of the roadway. At approximately 03:52 hours, ERT turned the scene over to the Office of Track and Structure (TRST), and repairs to the incident site commenced. At approximately 06:02 hours, the third rail power was energized.

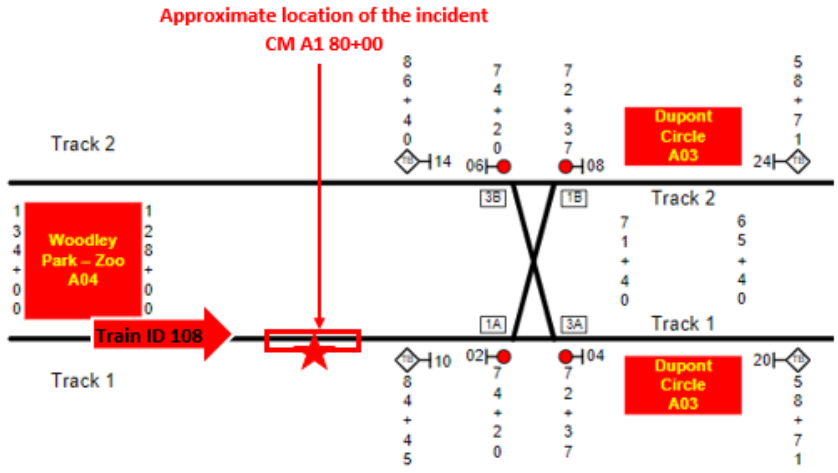
No WMATA personnel were removed from service and sent for post-incident toxicology testing.

The probable cause of the arcing event was a low-voltage transformer failure that resulted in an overheating condition. The overheating condition resulted in a failure of the insulating material and subsequent electrical arcing that damaged adjacent equipment, including communications and ATCM cabling, until the power source was removed.

Incident Site

Between Woodley Park Station and Dupont Circle Station – CM A1 80+00

Field Sketch/Schematics



**Locations are approximate. Not to scale.*

Purpose and Scope

The purpose of this accident investigation and candid self-evaluation is to collect and analyze available facts, determine the probable cause(s) of the incident, identify contributing factors, and make recommendations to prevent a recurrence.

Investigative Methods

Upon receiving notification of the Evacuation for Life Safety Reasons at Dupont Circle Station on July 30, 2022, SAFE dispatched a cross-functional team to assess the scene and conduct a subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Site Assessment through video and document review

- Formal Interviews – SAFE interviewed nineteen (19) people as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individuals:
    - Train Operator of ID 108
    - Train Operator of ID 103
    - RTRA Supervisor #1 (onboard Train 103)
    - RTRA Supervisor #2 (Forward Liaison on the platform at Dupont Circle)
    - ERT RWIC
    - Low Voltage Electrician #1
    - Low Voltage Electrician #2
    - ROCC Radio RTC #1 (1400-2200)
    - ROCC Radio RTC #2 (2200-0600)
    - ROCC AOM Rail 3 #1 (1400-2200)
    - ROCC AOM Rail 3 #2 (2200-0600)
    - ROIC Manager (2200-0600)
    - MAC #1 (1400-2200)
    - MAC #2 (2200-0600)
    - Rail Operations Manager Rail 1 #1(1400-2200)
    - Rail Operations Manager Rail 1 #2(2200-1400)
    - MOC Manager #1 (1400-2200)
    - MOC Manager #2 (2200-0600)
    - MOC Maintenance Manager

- 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 the following:
    - Low Voltage Power Department Analysis
    - MTPD Hotwash and Event Report
    - Metrorail Safety Rules and Procedures Handbook (MSRPH)
    - National Oceanic and Atmospheric Administration (NOAA)
    - ROCC Standard Operating Procedures
    - Employee Work History and Written Statement
    - Written Statements from responding personnel, including ATCM and LVEM Rail Supervisor Training Procedures & Records
    - Metrorail Safety Rules and Procedures Handbook (MSRPH)
    - National Oceanic and Atmospheric Administration (NOAA)
    - Rail Operations Control Center (ROCC) Incident Report

- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
    - Advanced Information Management System (AIMS)
    - Audio Recording System (ARS) playback
    - Closed-Circuit Television (CCTV)
    - Everbridge Notification System
    - Vehicle Monitoring System (VMS)
    - General Orders and Track Rights System
    - Maximo Data

Investigation

On Saturday, July 30, 2022, at approximately 21:11 hours, the Train Operator of Train ID 108, located outside of Woodley Park Station heading in the direction of Dupont Circle, track 1, contacted the ROCC and reported a loss of speed commands. The ROCC Radio RTC instructed the Train Operator to perform a track inspection with a permissive block to Dupont Circle Station. After moving the train, a short distance, the Train Operator reported seeing sparks emitting from the wall. The ROCC Radio RTC instructed the Train Operator to reverse ends; then, Train ID 108 was given an absolute block to Woodley Park Station, track 1, where the train was offloaded.

At approximately 21:07 hours, the Dupont Circle Station fire alarm and the Dupont Circle DPS activated.

Fire Alarm at DPS #2 at 21:07 hours

The ARS playback indicated that at approximately 21:09 hours, the ROCC Radio RTC instructed an RTRA Rail Supervisor #1, located at Metro Center Station, to respond to Dupont Circle Station for the active fire alarm. At approximately 21:10:25 hours, the ROCC Radio RTC attempted to contact Train ID 108, located at Woodley Park Station, track 1, no response was received from

the Train Operator of Train ID 108. Train ID 108 departed Woodley Park Station at approximately 21:10:40 hours.

The Train Operator of Train ID 108 began to move their train across the down track circuit without contacting and receiving permission from ROCC. At approximately 21:11 hours, the Train Operator of Train ID 108 contacted ROCC and reported a loss of speed commands. The ROCC Radio RTC instructed the Train Operator to perform a track inspection with a permissive block to Dupont Circle Station. At approximately 21:12 hours, the MOC contacted DCFEMS and reported an active fire alarm at the Dupont Circle DPS (A1 112+25).

After moving the train[1], the Train Operator reported seeing sparks emitting from the wall at approximately 21:13 hours. The ROCC Radio RTC instructed the Train Operator to reverse ends. At approximately 21:16 hours, the ROCC Radio RTC inquired if smoke was associated with the reported sparks, no response was received from the Train Operator. At approximately 21:17 hours, the ROCC AOM contacted DCFEMS and reported an active fire alarm at Dupont Circle Station.

At approximately 21:18 hours, Rail Supervisor #1 advised ROCC that they were aboard Train ID 103, track 2, approaching Dupont Circle Station. The Station Manager at Dupont Circle notified ROCC that smoke was entering the station from behind the end gate. At approximately 21:19 hours, Train ID 103 arrived at Dupont Circle Station, track 2. Rail Supervisor #1 reported observing smoke in the tunnel on track 1. The Radio RTC instructed the Train Operator to turn off the environmental system in the entire consist, gave a permissive block to Dupont Circle Station, track 2, and instructed the Train Operator to offload the train.

At approximately 21:24, the ROCC Radio RTC appointed Rail Supervisor #1 as the On-Scene Commander and instructed them to board Train ID 103 to prepare for a track inspection; ROIC requested shuttle bus services. At approximately 21:27 hours, the fans were activated, and Rail Supervisor #1 reported that the smoke was dissipating; they did not see an arching insulator. At approximately 21:29 hours, the Radio RTC instructed the Train Operator of Train ID 103 to perform a track inspection between Dupont Circle and Woodley Park Stations, track 2, with Rail Supervisor #1 aboard. At approximately 21:30 hours, ROIC canceled shuttle bus services.

At approximately 21:31 hours, DCFEMS arrived at the North Entrance at Dupont Circle Station. MTPD and DCFEMS established Unified Command. At approximately 21:33 hours, Rail Supervisor #1 reported observing a fire and heavy smoke at A1 088+00 and reported that it was not safe for train movement on tracks 1 and 2; train service was suspended at Dupont Circle Station.

[1] According to the CMOR Report, the train moved approximately 1,335 feet.

Image 1 – Burned cabling at A1 88+00

At approximately 21:35 hours, the Station Manager at Dupont Circle Station was instructed to evacuate the station. At approximately 21:36 hours, ROIC made another request for shuttle bus service.

At approximately 21:46 hours, the MTPD located on the platform at Dupont Circle Station advised that an arching insulator was observed from the platform, and DCFEMS elected to wait for the arrival of ERT before entering the roadway. At approximately 21:56 hours, Incident Command reported that ERT arrived at Dupont Circle Station. At approximately 22:02 hours, Incident Command reported that Rail Supervisor #2 arrived at Dupont Circle Station.

At approximately 22:05 hours, the ROCC RTCs changed shifts. At approximately 22:09 hours, the Office of ATCM arrived at Dupont Circle Station. The Radio RTC appointed Rail Supervisor #1 as the RTRA Forward Liaison. At approximately 22:11 hours, ERT contacted the ROCC Radio RTC and advised that they were on the scene at Dupont Circle Station, taking equipment to the platform. At approximately 22:17 hours, DCFEMS advised that they would not enter the roadway with ERT[2]. At approximately 22:23 hours, ATCM and ERT personnel requested permission to enter the roadway[3]. At approximately 22:30 hours, ERT advised that they were standing by for an AMF to position at Woodley Park Station. DCFEMS departed Dupont Circle Station[4].

At approximately 22:39 hours, the ROCC Radio RTC granted permission to ATCM and ERT to enter the roadway under foul time to perform an inspection. At approximately 22:47 hours, the ROCC Radio RTC advised that third rail power was de-energized between 157+29 and 157+29 on tracks 1 and 2. At approximately 22:49 hours, ERT attempted to contact ROCC; however, the

[2] Reportedly, ERT advised DCFEMS after their initial inspection that the fire was electrical in nature.as
[3] ATCM and ERT were delayed entry into the roadway due to the ROCC AOM advising ERT that an AMFs was required for RWP protection before entering the roadway.
[4] DCFEMS predetermined that their presence was not required due to the presumed source of the fire.

transmission was distorted[5]. At approximately 22:51 hours, ERT contacted the Buttons RTC via landline and reported that the fire was still burning at A1 081+00, DCFEMS was not on the roadway, and DCFEMS assistance was requested. ERT was instructed to return to the platform. At approximately 22:56 hours, the ROCC AOM contacted DCFEMS and requested they return to Dupont Circle Station. At approximately 22:57 hours, ERT advised that the fire was located between A1 081+00 to 083+00. At approximately 23:01 hours, ERT contacted ROCC via landline and reported that a cable attached to the tunnel wall had broken loose, sparking and they could not extinguish the fire.

At approximately 23:07 hours, Incident Command reported that DCFEMS Engines 1 and 9 were on scene. At approximately 23:14 hours, Incident Command advised that permission was granted for DCFEMS to enter the roadway. At approximately 23:15 hours, Rail Supervisor #2 informed ROCC that DCFEMS would not enter the roadway until Power personnel arrived. At approximately 23:17 hours, ERT reported clear of the roadway and relinquished foul time. At approximately 23:18 hours, Buttons RTC advised Incident Command that Power personnel was en route. At approximately 23:19 hours, ERT with DCFEMS requested to verify that the third rail power was de-energized on track 2.

At approximately 23:23 hours, ERT reported an explosion in the tunnel. At approximately 23:24 hours, Incident Command advised that the Power personnel were on scene[6]. At approximately 23:26 hours, Low Voltage Power personnel were dispatched to Dupont Circle Station. At approximately 23:29, a Supervisory Power outage was requested. At approximately 23:30 hours, Rail Supervisor #1 reported that smoke had dissipated. At approximately 23:35 hours, High Voltage Power personnel requested a Red Tag Power Outage.

On Sunday, July 31, 2022, at approximately 00:31 hours, Incident Command reported that Low Voltage arrived at Dupont Circle Station. At approximately 02:10 hours, ERT reported possession of Red Tag 2022212508-A. At approximately 02:34 hours, Incident Command turned over the scene to ERT and Incident Command was dissolved. At approximately 02:37 hours, ERT was granted permission to enter the roadway to the incident site to perform an inspection.

The following is adopted from findings provided by the Low Voltage Power Section (LVEM):

"Low Voltage technicians identified an electrical junction box on track 1 at chain markers 87+3 as the source of the fire; however, due to not having track access they were unable to identify what equipment the junction box was supplying electric to, properly identify the source in the electrical room to de-energize the breaker.

Low Voltage technicians, identified a location on track 1, chain marker 80+00, where they were able to safely disconnect the power source from another junction box. This action immediately reduced the load on the circuit and the smoke and fire disseminated."

[5] Radio Service Outage between Dupont and Woodley was a result of the fire, which damaged communication cables. Other communication equipment was isolated from power until repairs were completed.
[6] High Voltage Power personnel arrived on scene.

At approximately 03:35 hours, DCFEMS departed Dupont Circle Station. At approximately 03:46 hours, ERT reported Low Voltage Power Personnel were able to diffuse sparking of the cable and all personnel were clear of the roadway. At approximately 03:52 hours, ERT turned over the scene to the TRST, repairs to the incident site commenced. At approximately 05:58 hours, TRST advised ROCC that track 1 and 2 were revenue ready. At approximately 06:02 hours, third rail power was energized.

Chronological Event Timeline

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

Time	Description
21:07:19 hours	Dupont Circle A03-22 Fire Alarm activates. [AIMS]
21:07:48 hours	Dupont Circle A03-2 DPS alarms and Dupont Circle fire alarm is acknowledged in system by RTC [AIMS]
21:09:35 hours	Radio RTC #1: Instructed an RTRA Supervisor to respond for an active fire alarm at Dupont Circle Station. [Radio]
21:10:25 hours	Radio RTC #1: Attempted to contact Train 108 to hold at Woodley Park No response from Train 108. [Radio]
21:11:03 hours	Radio RTC #1: Contacted Train 108 Train 108: Reports loss of Speed Commands Radio RTC #1: Instructed Train ID 108 to conduct a Track Inspection from their location to Dupont Circle Station on Track 1 and provided a permissive block to the 8-Car Marker to Dupont and service the station. Train ID 108: Acknowledged and repeated the transmission. [Radio]
21:12:45 hours	MOC: Contacted 911 for fire alarm at the Dupont Circle DPS: 2300 Beech Drive NW (A1 112+25)
21:13:53 hours	Train ID 108: Reported "sparks on the wall" in front of their position. [Radio]
21:14:15 hours	Smoke visible from tunnel coming into Dupont Circle Station on Track 1 (Direction of Woodley Park Station). [CCTV]
21:15:00 hours	DCFEMS received a report for fire alarm at the Dupont Circle DPS and dispatches units to respond. [OpenMhz]
21:16:35 hours	Radio RTC: Inquired if Train ID 108 saw any smoke associated with the sparks. No response from Train 108. [Radio]
21:17:38 hours	RAIL 3: Made notification to 911 for fire alarm at Dupont Circle Station. [Phone]
21:18:00 hours	DCFEMS updated dispatch for a report of sparks in the tunnel outside of Dupont Circle. [OpenMhz]
21:19:23 hours	Train ID 103 arrived at Dupont Circle on Track 2 and stops partially on the platform. [CCTV and SPOTS]
21:19:48 hours	Station Manager: Reported "excessive smoke" conditions. [Radio]
21:20:35 hours	Radio RTC to Operator: Reported power de-energized. [Phone]
21:22:08 hours	Train ID 103: Reported they saw smoke upon arrival and requested to berth at the 8-car marker to off-load. Train ID 103 reported they would turn off the EV. Radio RTC: Confirmed the transmission. [Radio]
21:22:09 hours	Ventilation Fans in the area of Dupont Circle are activated [AIMS Event Log]

Time	Description
21:22:58 hours	Radio RTC: Asked Train ID 108 whether they reversed ends. Train 108: Confirmed they were in position on the trailing end. [Radio]
21:23:00 hours	Station Manager initiated station evacuation. Customers begin exiting platform to mezzanine in an orderly fashion. [CCTV]
21:23:25 hours	Radio RTC: Instructed Train ID 103 to off-load their train on Track 2 Dupont Circle. [Radio]
21:24:05 hours	Radio RTC: Gave Train ID 108 instructions to proceed towards Woodley park. [Radio]
21:24:34 hours	Radio RTC to RTRA Supervisor: 1A was placed into effect, RTRA Supervisor designated as the on-scene commander. [Radio]
21:24:22 hours	ROIC Information Specialist: Made initial request to BOCC for a Bus Bridge between Farragut North and DuPont [Phone]
21:26:22 hours	Train ID 108: Asked the Radio RTC what their instructions were after they off-loaded. Radio RTC: Instructed them to standby for instructions after off-load. [Radio]
21:27:51 hours	Radio RTC: Reported fans activated [Radio]
21:30 hours	ROIC Information Specialist: Canceled bus bridge request as ROCC is preparing to single track through the area. [Phone]
21:31 hours	DCFEMS arrives on scene at North Mezzanine. [CCTV]
21:32 hours	MTPD and DCFEMS establish Unified Command at 20th Street entrance. [MTPD Hotwash]
21:36 hours	ROIC Information Specialist: Makes new request for bus bridge rom Van Ness to Farragut North due to report of active fire. [Phone]
21:44 hours	SAFE Notification of I-6 Fire/Smoke event made via Everbridge [Email]
21:50 hours	Bus Bridge Established. [MTPD Hotwash and Email]
22:23 hours	DCFEMS Clears Dupont Circle Platform [CCTV]
22:27 hours	RWIC contacted the AOM and inquired if both tracks were shut down and whether an AMF was required. The AOM advised that an AMF is required. [Phone]
22:30 hours	DCFD leaves the scene. [MTPD Hotwash and CCTV]
22:39 hours	ERT and ATCM given permission to enter roadway for inspection [Radio]
22:42 hours	ERT and ATCM commenced inspection [CCTV]
22:47 hours	Radio RTC confirms power deenergized up to A1 127+92 [Radio]
22:51 hours	ERT calls on phone and advises fire is still active. Requests Fire Department return the o scene [Phone]
22:56 hours	AOM placed the second call for DCFEMS to respond back to Dupont Circle Station [Phone]
23:01 hours	Radio RTC has communications issues with ERT, requested that RTRA Supervisor #2 advise when all personnel clear back to the platform, fire still active. [Radio]
23:07 hours	RTRA Supervisor #1 advised Engine 1 and Engine 9 on scene [Radio]
23:11 hours	DCFEMS on the platform, ERT advised all personnel 100 ft from the platform. [Radio]
23:17 hours	ERT advised all personnel on that platform. RTRA Supervisor #1 at Incident Command Post with Incident Commander requesting additional power crews. [Radio]

Time	Description
23:19 hours	ERT relinquished foul time [Radio]
23:23:32 hours	RTRA Supervisor to RTC: Reported sound of explosion from inside the tunnel, close to the interlocking. [Phone]
23:29 hours	TRPM on scene. Advised smoke dissipated from the roadway. Advised Low Voltage not on scene yet [Radio]
23:48 hours	Rail 1 to Rail 3: DCFD requested a red tag.
07/31/2022	
00:14 hours	ERT advised fire appeared to be creeping further along the wall toward the platform. [Radio]
00:16 hours	Radio RTC confirmed with ERT that all personnel were on the platform. [Radio]
00:30 hours	RTRA Supervisor advised Low Voltage Power teams on scene. RTC advised they were still waiting for Red Tag. [Radio]
01:35 hours	TRPM requests Foul Time for hot sticking for both tracks 1 and 2 CM A01 103+00 through 075+00 [Radio]
01:39 hours	TRPM given permission to enter the roadway [Radio]
01:47 hours	TRPM relinquished foul time [Radio]
02:10 hours	ERT RWIC in possession Red tag 2022212508-A [Phone]
02:16 hours	Radio RTC approves ERT to enter the roadway [Radio]
02:28 hours	ERT RWIC advised RTC that they would need to hold the scene for 15 more minutes to conduct investigation. [Radio]
02:30 hours	ERT RWIC receives permission to install shunts [Radio]
02:36 hours	Radio RTC confirmed shunts on tracks 1 and 2 and gives permission for ERT to commence investigation. [Radio]
03:35 hours	DCFEMS Clears Dupont Circle [CCTV]
03:46 hours	ERT RWIC advised RTC sparks are defused, all personnel clear of the roadway, not yet relinquished foul time, would land line [Radio]
03:52 hours	ERT RWIC advised turning over Red Tag 2022212508-A Dupont Circle Tracks 1 and 2 to TRST RWIC 631 [Radio]
04:14 hours	ATC attempts communication with TRST RWIC, experiences communication issues, RTC acknowledges [Radio]
04:25 hours	TRST RWIC confirmed 4 working shunts and gained permission to go to work in the roadway [Radio]
04:40 hours	TRST RWIC to RTC at CM A01 095+00 conducting track inspection, ATC troubleshooting down circuit, COMR inspecting wiring. TRST RWIC revenue unlikely to be affected if ATC completes down circuit Will have communication outage A01 CM 74+00 through 90+00 [Radio]
04:57 hours	TRST RWIC advised ETS box currently functioning [Radio]
05:08 hours	TRST RWIC advised concluded track inspection tracks 1 and 2 revenue ready, does not clear track as still in the roadway [Radio]
05:29 hours	Radio RTC attempted contact with ATC requested landline [Radio]
05:32 hours	Radio RTC requested location of TRST RWIC, TRST RWIC on platform of Dupont Circle Station [Radio]
05:41 hours	TRST RWIC awaiting call from ATC unit, will then clear [Radio]
05:55 hours	TRST RWIC requested permission to go back into the roadway to ATC [Radio]

Time	Description
05:58 hours	TRST RWIC advised RTC both tracks 1 and 2 are revenue ready and may restore third rail power Track 2 circuits fully operational, track 1 has 3 circuits down, ATC notified MOC. Communications issues 74+00 through 90+00 persist Roadway clear 06:00 hours [Radio]
06:02 Hours	Radio RTC advised third rail power energized [Radio]

***Note: Times above may vary from other system's timelines based on clock settings and reporting source.*

Office of Chief Mechanical Officer (CMOR) Railcar Engineering Vehicles (CENV)

The Railcar Engineering Vehicles (CENV) office analyzed the Vehicle Monitoring System (VMS) data from Train 108. The train consist was a 6000-series car that included cars 6147-6146.6094-6095.6118-6119**.** Car 6147 was the lead when moving in the direction of Dupont Circle on Track 1.

The following information is adapted from CENV's analysis:

- Consist departed Woodley Park towards Dupont Circle with car 6147 as the Lead at 21:09:10 hours.
- The train reached a maximum speed of 45 mph prior to losing speed commands.
- Lost speed commands at 21:09:55 hours after traveling 2,060 feet.
- The train traveled an additional 265 feet before coming to a full stop at 21:10:07
- Entered Stop and Proceed at 21:10:42 hours and traveled an additional 1,335 feet.
- Full Stop at 21:12:36 hours [after observing sparks]. Train Operator activated Public Address prior to keying down.
- 21:15 hours Car 6147 is keyed down.
- 21:19 hours Car 6119 is keyed up and PA is activated.
- 21:24 hours Consist begins moving towards Woodley Park at a maximum speed of 15 mph due to lack of speed commands.
- 21:28 hours Consist arrives at Woodley Park.
- No emergency doors were activated. All doors remained closed and locked.
- The front emergency intercom on car 6095 was activated just prior to moving back towards Woodley Park station.

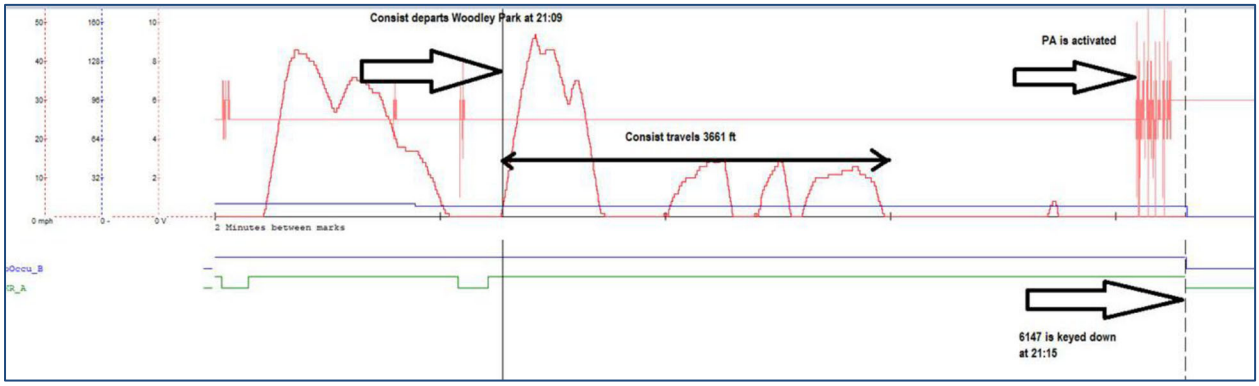


Figure 1 - VMS graphical output indicating total distance traveled by Train ID 108 towards Dupont Circle and PA activations.

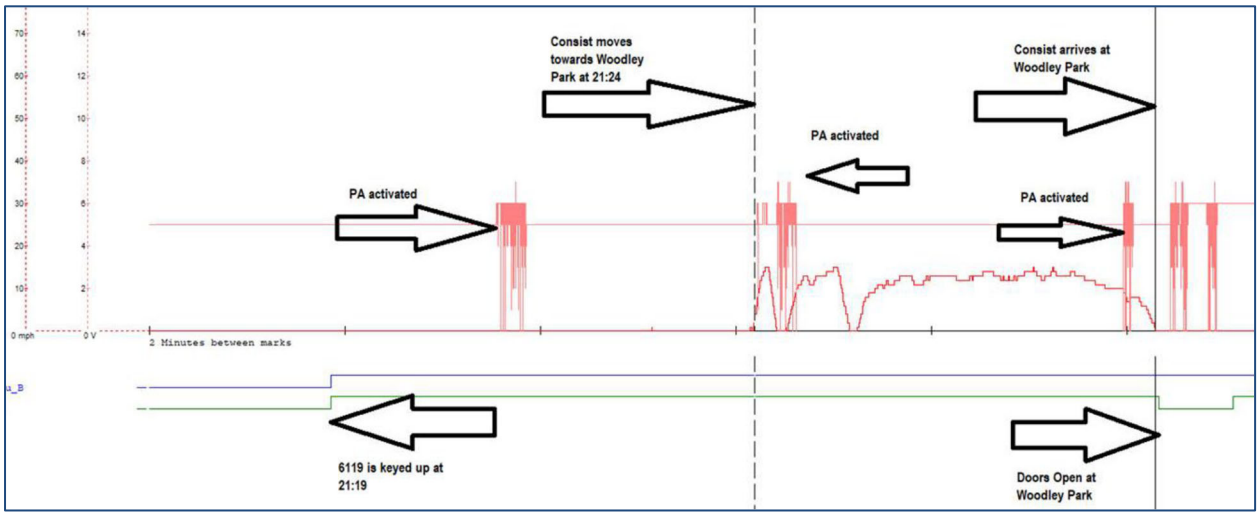


Figure 2 - Additional output of Train 108's return to Woodley Park Station on Track 1.

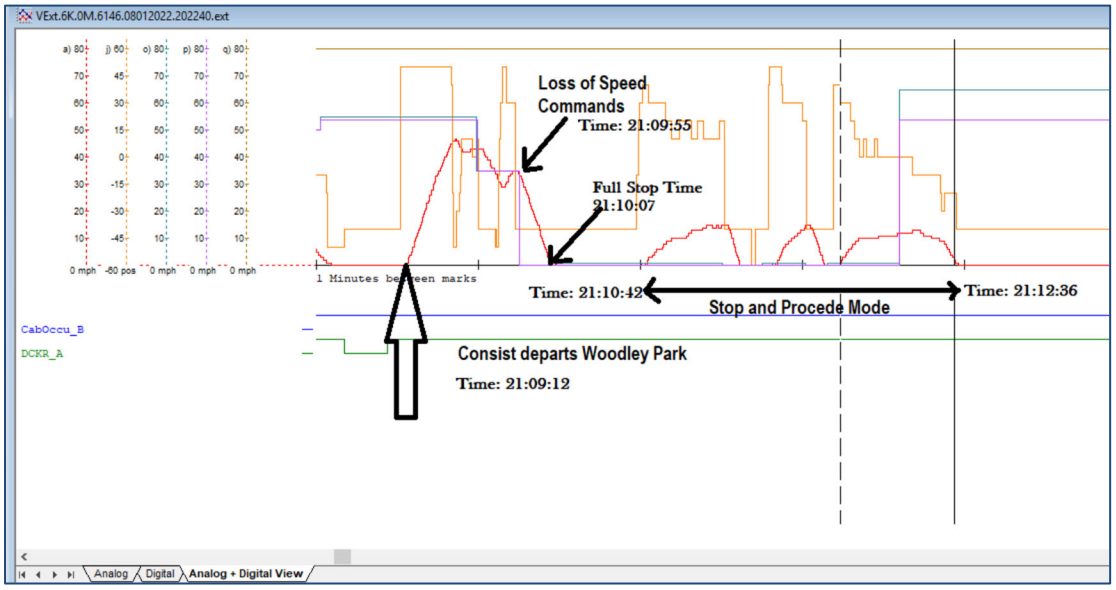


Figure 3 - Train ID 108's Presence of Speed Commands during move towards Dupont Circle on Track 1.

Office of Systems Maintenance, Low Voltage Power Section (LVEM)

The following is adopted from findings provided by the Low Voltage Power Section (LVEM):

"Low Voltage technicians identified an electrical junction box on track 1 at chain markers 87+3 as the source of the fire, however due to not having track access they were unable to identify what equipment the junction box was supplying electric to, properly identify the source in the electrical room to de-energize the breaker.

Low Voltage technicians, at approximately 03:00 Hrs., accessed the track and identified a location on track 1, chain marker 80+00, where they were able to safely disconnect the power source from

another junction box. This action immediately reduced the load on the circuit and the smoke and fire disseminated."

Metro Transit Police Department (MTPD)

The following information is adapted from MTPD's Event Report and Hotwash.

MTPD personnel established an Incident Command Post (ICP) on the street level in the immediate moments after arriving on the scene. A DCFEMS Battalion Chief responded to the ICP, which then converted to a Unified Command structure. An RTRA Forward Liaison also reported to the ICP. MTPD assigned an Accountability Officer, who tracked access and egress from the Station during the event.

MTPD noted that the bus bridge setup was ineffective initially, however a Transit Field Supervisor arrived and quickly coordinated the bus bridge and guided passengers to the appropriate shuttle.

DCFEMS elected to wait for the arrival of ERT before accessing the roadway due to the reported nature of the fire (electrical). During this period, additional MTPD units surveyed adjacent stations for smoke conditions and found none.

Discussion between ERT and DCFEMS resulted in DCFEMS clearing the scene prior to ERT entering the roadway to assess the conditions. After ERT discovered the arcing event still ongoing, DCFEMS were recalled to the scene and ERT returned to the platform.

Additional maintenance personnel were dispatched to the station and a Red Tag outage was requested by DCFEMS. While waiting for the Red Tag to be issued, TRPM and LVEM personnel arrived. Several "explosions" were heard in the tunnel while personnel waited for the Red Tag.

DCFEMS turned the scene over to WMATA after the Red Tag was issued and remained on scene during the mitigation response in case any injuries occurred.

DCFEMS remarked that having a maintenance lead or subject matter expert at the ICP would have expedited the inspection and mitigation process.

Interview Findings

SAFE conducted nineteen formal interviews with involved personnel via Microsoft Teams, which included representatives from the WMSC. The interviews conducted identified the following key findings associated with this event. Findings detailed below include reported information from interviews and may conflict with other data sources contained in the report:

<u>Train Operator of ID 108</u>

- Reported receiving instruction from ROCC to perform a track inspection towards Dupont Circle.
- Described electrical event as sparks on the wall, similar to observing welding operations. Reported that they did not see any fire condition.
- Estimated their distance to the area of the sparks as 1,000 feet.

- Reported that after reversing ends, they sat and waited for instructions from ROCC to move back to Woodley Park Station. **Note: The RTC's instructions were to reverse ends and advise when they were keyed up.*

Train Operator of ID 103

- Reported boarding RTRA Supervisor #1 at Metro Center to investigate Dupont Circle Station.
- On arrival at Dupont Circle on Track 2, the train lost speed commands and they observed some smoke conditions from Track 1.
- After receiving permission, they berthed on the platform and discharged all passengers.
- RTRA Supervisor #1 investigated the smoke on Track 1 while the Train Operator confirmed the train was clear.
- During the track inspection on Track 2, the Train Operator reported observing an "insulator" on fire on Track 1. RTRA Supervisor #1 reported the information to ROCC.

RTRA Supervisor #1 (on board Train 103)

- RTRA Supervisor #1 reported that their initial assessment of Dupont Circle showed that smoke was dissipating and light on their arrival. They were requested to perform a non-revenue track inspection aboard Train 103.
- RTRA Supervisor #1 described the source of the fire/smoke as wires against the wall (same report as Train Operator) in the area of A1 88+00 but could not recall describing that in detail. Audio playback indicates he reported "fire and heavy smoke" without a source over the radio and later over the phone as an arcing insulator.

RTRA Supervisor #2 (Forward Liaison on platform at Dupont Circle)

- RTRA Supervisor #2 was positioned on the platform after the station evacuation and stood by, relaying information to RTRA Supervisor #1 at the ICP. They described hearing several explosions from the platform while crews waited permission to enter the roadway.

ERT RWIC

- The ERT RWIC reported being dispatched at approximately 21:30 hours to Dupont Circle for an arcing insulator.
- They did not report excessive delays in gaining roadway access and walked to the site under Foul Time.
- On seeing the arcing event, the RWIC captured a short video of the condition from a safe distance, requested the Fire Department return and then returned to the platform with all personnel.
- On return of the Fire Department, he was advised that a Red Tag outage was required. After waiting for the Reg Tag to be issued, DCFEMS declined to enter the roadway with the responding crews.

Low Voltage Electrician #1

- LVEM Electrician #1 reported being dispatched from Glenmont Yard to Dupont Circle Station at approximately 2300 hours. They reported arriving and checking in with the Accountability Officer at approximately 2400 hours (7/31) and reporting to the platform.
- They reported frustration with remaining on the platform while equipment continued to be damaged. Once they received permission to enter the roadway, they were able to quickly disconnect the power source and stop the arcing.

Low Voltage Electrician #2

- LVEM Electrician #2 reported being dispatched from Glenmont Yard to Dupont Circle Station at approximately 2300 hours. They reported arriving and checking in with the Accountability Officer at approximately 2400 hours (7/31) and reporting to the platform.
- While waiting on the platform, they reported checking the AC Power rooms for any tripped breakers or indications of power problems on the roadway. They did not trip any breakers, as arcing source was not yet identified.
- Once they were on the roadway, they were able to identify and disconnect the power source at a safe location and the smoke and arcing quickly dissipated.

ROCC Radio RTC #1 (1400-2200)

- When they observed Fire Alarm at Dupont Circle, they dispatched a supervisor to the area to investigate. There were no reports of smoke initially.
- When they observed the down track circuit, they attempted to contact Train 108 to have them hold on the platform at Woodley Park Station, but they did not respond. The Train Operator eventually reported that they did not have speed commands, but the train was already out of the station with customers on board.
- After the Train Operator reported sparks and their location, Radio RTC #1 instructed them to turn off their EV system, make announcements to the customers, reverse ends and notify them when they were ready to move.
- When Train 103 performed their inspection on Track 2, the smoke was dissipating at Dupont Circle. The Supervisor reported fire and heavy smoke during their inspection and recommended no train movement.
- They also reported that shift change can occur during an event if they are able to brief and hand off the event. In this event, the transfer of staff was staggered to the midnight shift personnel.

ROCC Radio RTC #2 (2200-0600)

- Radio RTC #2 reported receiving a briefing on the event before the took over the console from the outgoing shift. When they took over, trains were already turning back at stations away from the event.
- They used the Station Manager and RTRA Supervisor #1 to relay information to MTPD at the Command Post.
- They reported that when additional units are requested from the field, they relay the message to the AOM, who was standing behind them, who passes the information to MOC.

ROCC AOM Rail 2 #1 (1400-2200)

- Reported being aware of MOC making a 911 call for the DPS but made a separate 911 call for Dupont Circle Station at approximately 21:18 hours in case the two events were related.
- Their role was to manage the other rail lines while Rail 1 and Rail 3 managed the event.

ROCC AOM Rail 3 #2 (2200-0600)

- AOM Rail 3 #2 reported receiving a briefing on the event before the took over the console from the outgoing shift. When they took over, trains were already turning back at stations away from the event.

- They reported coordinating the return of DCFEMS after ERT reported an active fire on the roadway.

ROIC Manager #1 (1400-2200)

- Reported that they received a report of smoke from the Dupont Circle Station Manager, which they relayed to Rail 1 #1.
- ROIC Lead sent the initial ROCC Alert out indicating an arcing insulator as that was relayed to them as the likely cause of the smoke.
- After receiving updates on bus shuttle service being cancelled and single-tracking about to begin, they sent updated ROCC Alerts. At the conclusion of their shift, the event was still ongoing without a determined cause.

ROIC Manager #2 (2200-0600)

- ROIC Manager reported receiving limited information from the outgoing shift on the full extent of the event and action plan moving forward. It took time for them to catch up to what resources were for the bus bridge and share useful information, such as using the line buses as an alternative.

MAC #1 (1400-2200)

- MAC #1 reported difficulty working with the OM (Rail 1), who left their post in the back to go to the front of the room and be involved. He reported that the OM gave him information about an arcing insulator.
- They also reported the OM denying their initial recommendation to evacuate Dupont Circle station.

MAC #2 (2200-0600)

- MAC #2 reported coming on duty early and receiving a briefing from MAC #1 about the event. MAC #1 stayed on duty during the transition.
- They reported contacting the Safety Director On-Call with the initial information they received (arcing insulator) when they took over the MAC Desk at 2200 hours.
- They notified WMSC via landline at approximately 22:26 hours.
- MAC #2 reported being the liaison between the Incident Command Post (MTPD), FLO, and ROCC.

Rail Operations Manager Rail 1 #1(1400-2200)

- Reported that their initial awareness of the event was for a down-track circuit outside of Woodley Park, which they relayed to the MAC.
- On viewing smoke coming into the station at Dupont, the MAC recommended closing the station. They reported agreeing and notifying the ROIC Information Lead.
- The OM on duty at the event outset reported that he is new to the position (two months), possesses an RWP Level 2 from a previous position, and has not completed GOTRS training. The position requires a Level 4 and GOTRS training.

Rail Operations Manager Rail 1 #2 (2200-1400)

- Rail OM #2 reported coming on duty after the event was underway. They received a briefing from the outgoing Rail 1.
- OM #2 oversaw the ERT response and activities after the arcing was confirmed by ERT.

MOC Manager #1 (1400-2200)

- MOC Manager #1 reported notifying 911 of the Fire Alarm at the DPS per standard procedure. Shortly after, they were notified of two down track circuits in the same general area by the AOM. They could not recall where they first heard reports of an arcing insulator but recalled hearing it.
- About 20 minutes into the event, DCFEMS requested that the tunnel fans be operated in exhaust mode in the incident area instead of supply, as per the playbook.
- The PLNT desk was also managing the TRST desk and dispatched ERT to the scene.
- They reported communicating with the Big 3 verbally from their desk with updates on the Maintenance operations side.
- They recommended updating the fire alarm logs to be more descriptive so they can identify the exact location of the alarm faster.

MOC Manager #2 (2200-0600)

- MOC Manager #2 reported dispatching additional maintenance units to the scene following the report of arcing/fire by ERT. Their role was to dispatch units as requests were received.
- MOC Manager #2 reported dispatching units from COMR, TRPM and ATCM once they heard the report of arcing on the wall based on their experience instead of waiting for the request.
- They also reported that the MOC desk is responsible for notifying 911 for emergencies occurring at facilities and non-station structures, such as the DPS.

Weather

On July 30, 2022, at the time of the incident, NOAA recorded the temperature as 80° F, with no precipitation. The event occurred within a tunneled section of the rail system. Responding personnel reported dry conditions. Weather was not a likely contributing factor in this incident (Weather source: NOAA – Location: Washington, DC.)

Human Factors

Fatigue

Evidence of Fatigue – Train ID 108 Train Operator

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The Train Operator of ID 108 reported feeling fully alert at the time of the incident. The Train Operator of ID 108 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – Train ID 108 Train Operator

The incident data was evaluated for fatigue risk factors. Risk factors for fatigue were not present. Since fatigue evidence and risk factors were not present, the biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied.
Train Operator of ID 103

Evidence of Fatigue – Train ID 103 Train Operator

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The Train Operator of ID 103 reported feeling fully alert at the time of the incident. The Train Operator of ID 103 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – Train ID 103 Train Operator

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

Evidence of Fatigue – RTRA Supervisor #1 (on board Train 103)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The RTRA Supervisor #1 reported feeling fully alert at the time of the incident. The RTRA Supervisor #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – RTRA Supervisor #1 (on board Train 103)

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

Evidence of Fatigue – Low Voltage Electrician #1

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. Signs of fatigue was indicated by the available data. No video of the involved person was available. The Low Voltage Electrician #1 reported feeling fully alert at the time of the incident. The Low Voltage Electrician #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – Low Voltage Electrician #1

Fatigue Risk Analysis using SAFTE-FAST of the Low Voltage Electrician #1 unavailable.

Evidence of Fatigue – Low Voltage Electrician #2

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. Signs of fatigue was indicated by the available data. No video of the involved person was available. The Low Voltage Electrician #1 reported feeling fully alert at the time of the incident. The Low Voltage Electrician #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – Low Voltage Electrician #2

Fatigue Risk Analysis using SAFTE-FAST of the Low Voltage Electrician #1 unavailable.

Evidence of Fatigue – ROCC Radio RTC #1 (1400-2200)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROCC Radio RTC #1 reported feeling fully alert at the time of the incident. The ROCC Radio RTC #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – ROCC Radio RTC #1 (1400-2200)

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

Fatigue Risk – OCC Radio RTC #2 (2200-0600)

Fatigue Risk Analysis using SAFTE-FAST was not available at the completion of this report. This information will be provided when available.

Evidence of Fatigue – ROCC AOM Rail 2 #1 (1400-2200)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROCC AOM Rail 2 #1 reported feeling fully alert at the time of the incident. The ROCC AOM Rail 2 #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – ROCC AOM Rail 2 #1 (1400-2200)

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

Evidence of Fatigue – ROCC AOM Rail 3 #2 (2200-0600)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROCC AOM Rail 3 #2 reported feeling fully alert at the time of the incident. The ROCC AOM Rail 3 #2 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – ROCC AOM Rail 3 #2 (2200-0600)

TAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were not present. Since fatigue evidence and risk factors were not present, the biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied.
Evidence of Fatigue – ROIC Manager #1 (1400-2200)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROIC Manager #1 reported feeling fully alert at the time of the incident. The ROIC Manager #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk - ROIC Manager #1 (1400-2200)

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

Evidence of Fatigue – ROIC Manager #2 (2200-0600)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROIC Manager #2 reported feeling fully alert at the time of the incident. The ROIC Manager #2 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – ROIC Manager #2 (2200-0600)

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

Evidence of Fatigue – Rail Operations Manager Rail 1 #1(1400-2200)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROCC OM Rail 1 #1 reported feeling fully alert at the time of the incident. The ROCC OM Rail 1 #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – Rail Operations Manager Rail 1 #1(1400-2200)

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

Evidence of Fatigue – Rail Operations Manager Rail 1 #2 (2200-3000)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was

reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The ROCC OM Rail 1 #2 reported feeling fully alert at the time of the incident. The ROCC OM Rail 1 #2 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – Rail Operations Manager Rail 1 #2 (2200-3000)

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

Evidence of Fatigue – MOC Manager #1 (1400-2200)

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No sign of fatigue was indicated by the available data. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident. The MOC Manager #1 reported feeling fully alert at the time of the incident. The MOC Manager #1 reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk – MOC Manager #1 (1400-2200)

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

Fatigue Risk – MOC Manager #2 (2200-0600)

Fatigue Risk Analysis using SAFTE-FAST was not available at the completion of this report. This information will be provided when available.

Fatigue Risk – MAC #1 (1400-2200)

Fatigue Risk Analysis using SAFTE-FAST was not available at the completion of this report. This information will be provided when available.

Fatigue Risk – MAC #2 (2200-0600)

Fatigue Risk Analysis using SAFTE-FAST was not available at the completion of this report. This information will be provided when available.

Fatigue Risk – RTRA Supervisor #2 (Forward Liaison on platform at Dupont Circle)

Fatigue Risk Analysis using SAFTE-FAST was not available at the completion of this report. This information will be provided when available.

Fatigue Risk – ERT RWIC

Fatigue Risk Analysis using SAFTE-FAST was not available at the completion of this report. This information will be provided when available.

Post-Incident Toxicology Testing

No WMATA personnel were removed from service and sent for post-incident toxicology testing.

Findings

- No injuries occurred as a result of this event.
- Train 108's Train Operator began to move their train across the down track circuit without contacting and receiving permission from ROCC.
- The Train Operator's initial report of "sparks on the wall" was interpreted to be an arcing insulator, which was reflected in the initial ROCC Alert notification at 21:37 hours.
- Communication and coordination during the initial response between the ROCC Operations Manager, FLO and MAC was hindered by the OM leaving their collocated position with the FLO and MAC and walking to the Ops 1 desk.
- Approximately eight minutes passed between the report of sparks to the activation of tunnel ventilation fans. Fans were activated in the near proximity of the Station Manager's report of smoke at Dupont Circle Station.
- The station evacuation was led by the Station Manager, who directed customers off the platform and out of the station by means of escalators. Some customers utilized the elevators.
- Approximately nine minutes passed between the RTC's instruction to Train 108 to reverse ends and notify and the RTC confirming that Train 108 was prepared to move back to Woodley Park platform. The Train Operator reported waiting for instructions and did not notify ROCC that they were in position, ready to move.
- DCFEMS elected to wait for ERT to gain access to the roadway to assess the nature of the fire.
- ERT was dispatched at approximately 21:34 hours, approximately 21 minutes after the initial report of sparks.
- ERT's initial inspection was delayed by a request from ROCC for AMF personnel on the platforms at Woodley Park and Dupont Circle Stations.
- A Maintenance Commander, as described in SOP 1A, was not assigned as part of the Incident Command structure.
- High and Low Voltage maintenance crews were not dispatched until the active arcing event was confirmed by ERT and ATCM personnel at approximately 22:51 hours.
- While standing by for the Red Tag Outage to be issued per DCFEMS request, explosions were heard in the tunnel, demonstrating additional loss of equipment and increased property damage.
- Radio Service Outage between Dupont Circle and Woodley Park was due to a damaged communication cable.
- Failure of the Low Voltage 480v transformer was identified as the cause of the overcurrent failure.
- Failure of the 70-amp breaker to trip as designed supplied voltage to transformers on the circuit was discovered.
- Insulation of the conductors failed due to excess current and heat.
- There is no “industry practice” of performing preventive maintenance on “run-to-failure” low voltage transformers, breakers, or conduits providing voltage to the equipment.

Damage Assessment

- The damage area was noted to occur primarily in the vicinity of CM A1 87+00 to 85+00
- ATC: Approximately 300 feet of damaged ATCM cable
- COMR: Three amplifiers and approximately 1,000 feet of cable damaged
- Low Voltage: Damage to junction boxes and approximately 100 feet of cable damage

Dupont Circle Incident Cost Estimate

Manpower Costs						
Position	Regular Hours			OT Hours		
	Hours	Rate	Cost	Hours	Rate	Cost
Supervision						
Supervisor	8	$45.17	$361.36	6	$68.00	$408.00
Supervisor		$45.17		15	$68.00	$1,020.00
Labor						
AA-Mechanic	8	$48.00	$384.00	6	$72.00	$432.00
AA-Mechanic	8	$48.00	$384.00	6	$72.00	$432.00
AA-Mechanic	8	$48.00	$384.00	6	$72.00	$432.00
AA-Mechanic	8	$48.00	$384.00	6	$72.00	$432.00
AA-Mechanic	8	$48.00	$384.00	6	$72.00	$432.00
AA-Mechanic	8	$48.00	$384.00	6	$72.00	$432.00
Totals	**56**	**$378.34**	**$2,665.36**	**57**	**$568.00**	**$4,020.00**
					Total Labor Cost	**$6,685.36**

Material Costs			
Item	QTY	EA	Total
10/5 - ALS	575	$4.58	$2,633.50
08/5 - ALS	275	$7.05	$1,938.75
Box - 6X6	2	$32.29	$64.58
Connector - ALS -10	5	$24.60	$123.00
Connector - ALS - 08	5	$30.58	$152.90
Load Center - 40A	1	$4,885.82	$4,885.82
Breaker - 70A	1	$2,500.00	$2,500.00
Strap - 3/4"	5	$1.68	$8.40
Nut, Wire - Blue	14	$0.50	$7.00
		Total Material Cost	**$12,313.95**

Total Cost	**$18,999.31**

Figure 4 – LVEM Incident Cost Estimate

FSVT - SMNT RADIO COMMUNICATIONS, LABOR & MAETRIALS COST

CHARGE CODE 260080 JOB LOCATION DUPONT CIRCLE TRAIN STATION (A03 - TRACK#1)

DATE: 07/31/22 - 08/01/22 JOB DURATION 07/31/22, 6:00AM - 08/01/22, 6:00AM

Cost Items	Description	QUANTITY	UNIT PRICE	TOTAL
MATRIAL COST				
1	7/8" RADIAX CABLE (COMMSCOPE RCT5-WBC-1X-RNA)	1000 FT	$8.36 PER FT	$8,360.00
2	7/8" RADIAX CONNECTORS (COMMCCOPE N-MALE EZ/8/78EZNM)	2	$40.00	$80.00
3	7/8" STAND OFFS	500	11.00	$605.00
	TOTAL MATERIAL COST			$9,045.00
LABOR HOURS	NAMES OF TECHNICIANS	MAN HOURS	HOURLY RATE	NET PAY
07/31/22 - 6:00AM - 3:00PM	[redacted]	9	$46.59	$419.31
07/31/22 - 6:00AM - 3:00PM	[redacted]	9	$46.59	$419.31
07/31/22 - 2:00PM - 12:00AM	[redacted]	12	$46.59	$559.08
07/31/22 - 9:30AM - 10:30PM	[redacted]	13	$46.59	$605.67
07/31/22 - 6PM - 12AM	[redacted]	6	$46.59	$279.54
07/31/22 - 10:00PM - 6AM	[redacted]	8	$46.59	$372.72
07/31/22 - 11AM - 10PM	[redacted]	11	$46.59	$512.49
07/31/22 - 10PM - 6AM	[redacted]	8	$46.59	$372.72
	SUPERVISOR - (NON - REP)			
07/31/22 - 8:30AM - 1:00AM	[redacted]	16.5	$45.17	$745.30
	TOTAL LABOR COST			$4,286.145
	GRAND TOTAL (LABOR AND MATERIALS)			$13,331.145

Figure 5 - COMR Incident Cost Estimate

Immediate Mitigation to Prevent Recurrence

- Damaged Low Voltage, ATC and COMR equipment and cabling replaced.
- Low voltage personnel have begun visually inspecting the electrical infrastructure in underground tunnels to identify electrical hazards such as loose cables, broken receptacle

covers, corrosion, and water leaks on or near electrical equipment. Inspectors will document issues found during the inspections, taking pictures, and noting chain markers. Management will create work orders to document correction or mitigation of problems found.

Probable Cause Statement

The probable cause of the arcing event was a low voltage transformer failure that resulted in an overheating condition. The overheating condition resulted in a failure of the insulating material and subsequent electrical arcing that damaged adjacent equipment, including communications and Automatic Train Control (ATC) cabling until the power source was removed.

SAFE Recommendations/Corrective Actions

Corrective Action Code	Description	Responsible Party	Due Date
101881_SAFECAPS_LVEM_001	Low voltage to visually inspect the electrical infrastructure in underground tunnels to identify electrical hazards such as loose cables, broken receptacle covers, corrosion, and water leaks on or near electrical equipment.	LVEM	03/31/2023
101881_SAFECAPS_LVEM_002	Low Voltage Inspectors to document issues found during the inspections, taking pictures, and noting chain markers. Management to create work orders to document correction or mitigation of problems found.	LVEM	03/31/2023
101881_SAFECAPS_COMR_001	Communication cables repaired and radio checks following the opening of the area affected by the tunnel fire between A03 to A05 on both tracks. 1000 Feet of 7/8" Radiax Cable – Replaced 2 - 7/8" Radiax Connectors – Replaced 500 - 7/8" Stand Offs - Replaced	COMR	Completed
101881_SAFECAPS_ROCC_002	Memorandum issued regarding collaborative and cohesive working relationship between RAIL1 and the Mission Assurance Coordinator (MAC).	ROCC/OEP	Completed
101881_SAFECAPS_ROCC_002	ROCC conducted an internal hot wash, reviewed audio radio communication and procedural compliance for track inspections, participated and shared information gathered from OEP AAR's with staff.	ROCC	Completed

Corrective Action Code	Description	Responsible Party	Due Date
101881_SAFE CAPS_MOC_0 01	Evaluate procedures for dispatching maintenance personnel to event scenes and make necessary revisions to ensure all required personnel are dispatched at the outset of the event. Training and personnel awareness to the requirement of a Maintenance Commander (Lead) in accordance with SOP 1A. (Use IMF Launch Date?)	MOC	Ongoing
101881_SAFE CAPS_SAFE_ 001	Three After Action Review information gathering sessions were conducted with involved departments with focus on: The Customer Experience, Emergency Response and Coordination of Damage Assessments. Topic discussions included improvement in the coordination of the on-scene response, damage assessments, repair coordination, restoration of service activities, and customer communications.	SAFE/OEP	Completed
101881_SAFE CAPS_BUS_0 01	Create customer engagement representative go-kits to effectively assist customers during an incident. (Determine the composition of go kits, develop a customer engagement emergency go0kit, create a checklist of items)	OEP/BUS	January 2023
101881_SAFE CAPS_BUS_0 02	Establish a standard structure for organizing, deploying, and coordinating Metro personnel to incidents requiring customer service engagement. (Develop customer interaction support plan, develop a procedure for deployment, and conduct training and exercise the customer interaction surge force)	OEP/BUS	June 2023
101881_SAFE CAPS_BUS_0 03	BUS will determine the minimum contingency staffing levels required to a rail service disruption. (Create a matrix with recommendations, partner with the COO, and communicate the plan at the Executive Safety Committee)	OEP/BUS	July 2023
101881_SAFE CAPS_BUS_0 04	BUS will develop incident response signage packages that are readily accessible and can quickly be deployed when needed. (Determine the composition of the incident response signage package, determine storage locations and deployment strategy, and launch signage initiative.)	OEP/BUS	July 2023
101881_SAFE CAPS_BUS_0 05	Develop strategy for incorporating Bus Bridge App into Emergency Operations.	OEP/BUS	Completed

Corrective Action Code	Description	Responsible Party	Due Date
101881_SAFE CAPS_BUS_006	Create a formalized playbook that integrates people, processes, tools, and resources to ensure an efficient and effective response to service disruptions and other emergencies. (Review existing procedures, draft playbook, conduct tabletop exercise to test and finalize playbook)	OEP/BUS	April 2023

Appendices

Appendix A – Interview Summary

ROCC AOM Rail 2 #1 (1400-2200)

The AOM stated this event occurred towards the end of the shift. The AOM explained the roles of the AOMs and responsibilities, highlighting that there are two roles, Rail Two and Rail Three. On the day of the event, the AOM was working at the capacity of Rail Two. When an emergency occurs the Rail Two AOM makes calls for emergency responders and then manages the OPS lines that are not part of the event.

On July 30, 2022, the AOM was assigned to OPS 3. The AOM received notification from a controller in passing stating they thought something was occurring on OPS 1 (Red Line). The AOM said they received information from the RTC regarding sparks and smoke. They made notification to DCFEMS at approximately 21:18 hours. The AOM noted an alarm was also going off at a DPS and MOC already notified the Fire Department for that address. The AOM made the call for DuPont Circle Station because they did not know if the two incidents were related.
Note: The AOM mentioned It appeared a lot was going on. The RTCs were tense and did not want them to be overwhelmed. The AOM reported, in their opinion, that the managers did decent with the situation, but there is always room for improvement.

The AOM discussed shift change and said, during shift change, a 15-minute meeting occurs in a briefing room with overall track conditions. This meeting is Conducted by Rail 1 on duty. When they arrive at the console, the outgoing controllers give their own personal briefing on any malfunctions, incidents, or roadway conditions.

The AOM mentioned they can move forward with a shift change during an active event. The AOM said under certain conditions, they wait until the incident is settled. Then they will commence with shift change removing one controller at a time. During an event that is under control, they move forward with a shift change.

The AOM reported they did not see any checklist on the consoles on each console. The AOM said, “we have a checklist on each desk,” and it is advised the checklist is used during incidents.
Regarding ventilation fan activation, PLNT activates the fans. The Button RTC contacts the PLNT desk to start the fans. The Rail 2 AOM noticed the fans were not turned on and went to the console to inquire about the status. They found that the activation was in progress. They also noted that Train 108 took longer than expected to reverse ends and move back to the platform.

Rail Operations Manager Rail 1 #1(1400-2200)

The OM stated that they had been in their current position since June 5, 2022. They held multiple jobs with WMATA including Rail Supervisor, RTC and AOM. The OM stated that they did not experience any fatigue issues during the incident, in fact the incident rejuvenated them. The OM stated that they reported on duty at 14:45 hours.

The OM stated that the position of OM requires them to inform upper management of different issues that are occurring in the Control Center and providing information to the different departments of what's going on in the railroad.

The OM stated that the Operations Manager before his shift didn't report anything pertinent that was going on with the railroad. The OM stated that the D&G Switch 5 was out of correspondence.

The OM stated that they were first made aware of the incident by the Rail 3 AOM who reported that there was a track circuit down. When they received the information, they informed the MAC and began to monitor the incident. The OM stated that they reported to the MAC that there was a train close to a down track circuit. There's a train approaching, doing the track inspection.

The OM stated that the AOM reported that Train Operator reported fire and smoke, 100 feet ahead of them. The train was reversing ends, so they informed the MAC. The OM stated that they started trying to pull up video and the location. When they saw smoke coming into DuPont, the MAC said we should close the station. The OM stated that they agreed and informed the ROIC Information Lead.

The OM stated that there was a train at DuPont and a supervisor aboard then off loaded the customers off the train. The Supervisor reported that they didn't see any smoke and didn't see any arcing.

The Supervisor was going to do a track inspection on the train on track two while the other train (108) was reversing ends to head back to Woodley.

The Supervisor gave the all clear that it was good in DuPont, but we still wanted to perform an inspection. The station was reopened. The Supervisor reported smoke, so we shut it down again. The OM stated that when train 108 operator first reported that they saw something, we dropped the power on track one in an area that would not bring the power down on the train.

The fire department was notified. But when ERT gave the all clear the first time, I believe they departed, so we had to call them back.

The OM stated that they were not aware of any fan activation issues. The OM stated that they had not fully completed training and need to attend RWP Level 4 and GOTRS training. The OM stated that they stayed on after their shift to continue to assist with the incident.

ROCC Radio RTC #1 (1400-2200)

The RTC stated this event occurred towards the end of the shift a little after 9pm when the incident started. The AOM explained that they were the Radio RTC during the in incident.

On July 30, 2022, the RTC was on as-directed assignment for their shift. They were assigned to OPS 1 when the event began. The RTC stated that a track circuit went down on track one. They intended to have Train ID 108 perform a track inspection, but the train left the platform before they were able to contact them. They were able to contact the Train after it left Woodley Park. Shortly after, the Train Operator stopped and reported sparks ahead of the train. They reported their location as Chain Marker A1 091+00. The RTC stated they informed the Train Operator to reverse ends and turn off the EV. The Rail Supervisor at Metro Center was instructed to take the next train on Track 2 to respond to DuPont Circle and assist.
The RTC stated that ROIC instructed the Station Manager to report to the platform for a report of smoke. The RTC started turning trains and other Rail Supervisors were instructed to report to the

location to assist. Unit 21 was assigned as the On-Scene Commander and was requested to provide a chain marker for the report of smoke.

The RTC stated that Train ID 103 was instructed to off-load and turn off the EV. The Supervisor reported that the smoke was dissipating. The RTC stated that the Supervisor boarded Train ID 103 to perform a track inspection. The RTC stated that the fans were on at this point and third rail power was down on Track 1. During the track inspection the Rail Supervisor reported heavy smoke and recommended that train not pass the location. The RTC stated that Transit and the Fire Department were on the scene, SOP 1A was in effect.

The RTC stated that there were no prior issues in the incident location and initially noticed the track circuit malfunction on the AIMS screen. The RTC stated that there were no radio communication issues with Train ID 108 before the event.

The RTC stated that during the turnover of shifts during emergencies they do not have to stay until the emergency is over. They provide information to the incoming personnel to allow them to take over and things can run smoothly. During this event, the turnover during the shift was staggered. The Button RTC took over before the Radio RTC.

The RTC reported no issues with fan activation but deferred to the Button RTC since they performed the action. The RTC was asked about the procedure for fan activation and provided an incomplete response. The RTC reported Rail 1 and Rail 2 were present during the incident to assist.

Train Operator of ID 108

During the SAFE interview, the Train Operator stated they were operating Train ID 108, departing Woodley Park Station, Track 1 in the direction of Dupont Circle Station. While leaving Woodley Park Station, the Train Operator received instructions from ROCC to perform a track inspection in approach to Dupont Circle Station. As the train approached Dupont Circle, they observed bright light flashing that was coming off the wall within the tunnel. The Train Operator reported they decreased the train speed and saw sparks as they turned the corner. The Train Operator stated they stopped the train when they visually saw smoke coming from the right side wall near Dupont Circle Station but before going into the portal. Next, they reported their findings to ROCC and were instructed to key down, reverse ends, and inform the customers of the situation. The Train Operator reported the visibility was low and it appeared as if welding operations were being conducted. They estimated that they were approximately 1000 feet away from the source of the smoke. No fire was present at the time.

After the Train Operator reversed ends, they were instructed to discharge the customers at the next station. The Train Operator reported after reversing ends, they did not have speed commands and were given an absolute block to move to the next station; however, it seemed they were waiting for an extended period before they received instructions from ROCC. The Train Operator suggested the radio communications were not good throughout the day and may have contributed to the delay of receiving instructions from ROCC. They stated they did not feel they were in any danger as they stopped the train when the smoke and sparking were visible. They reported all the customers appeared calm as they walked through the consist to change ends. When traveling under the absolute block, the Train Operator reported their train speed was not greater than 7 mph returning to Woodley Park Station.

The Train Operator reported they serviced Woodley Park and Dupont Circle Stations earlier in the day with no issues. The Train Operator concluded the interview stating radio communications seems to be an ongoing issue and there is no guarantee they will hear all transmissions on the radio.

**Note: When asked about being contacted by ROCC prior to leaving Woodley Park Station or losing speed commands after leaving Woodley Park Station, the Train Operator denied both occurrences. When asked specifically about repeating back a Permissive Block to DuPont Circle on Track 1, they again denied that occurrence, which is supported by audio playback.

Rail Operations Manager Rail 1 #2 (2200-3000)

The ROCC OM stated that they got to work at 2140 hours. They were originally due to work at 20:00 hours due to meetings in the morning. The ROCC OM stated that their responsibilities are to oversee the Rail Control Center operations.

The ROCC OM stated that Included in those responsibilities are to make sure that all procedures are being adhered to. If they have any type of disruption in service, ensuring that the right side of the Control Center sends out the appropriate messaging. The ROCC OM stated that they're responsible for the oversight of MOC, the maintenance operations control. Ensuring that they dispatch adequate personnel to support the operations in the event that we have some type of abnormalities that take place on a railroad. The ROCC OM stated that they are responsible for coordinating with the Power Department, who is currently in ROCC and showing that they are aware of any type of power issues that may arise throughout the day and just the overall administrative duties of the office itself.

The ROCC OM stated that they received a turnover from Rail 1, then noticed that third rail power was down from Farragut North, not the station, but surrounding the interlocking on tracks one and two all the way up until just past DuPont, just before Woodley Park platform. Trains were turning back at Farragut North pocket track.

The ROCC OM stated that they were informed of the interlockings that were clamped, the rail service pattern for the incident, the actual incident and why the power was down. Due to the smoking fire incident. The ROCC OM stated that they were informed of the locations where the trains were turning and who had command. Where the unified command was being established, where the incident command post was located. The ROCC OM stated that Rail 1 told them to type a messaging was going out and weekend work locations that were already in place.

The ROCC OM stated that they when I took over ERT had yet to arrive to the scene. They were waiting for ERT to arrive to the scene, so they gave a short brief out to their team, Rail 2 and 3. The ROCC OM stated that they told them the expectations, what was needed and to give any up-to-date information. Rail 3 was instructed to stay on the incident console, which was the red line, so they immediately reported to the Red Line console to give up to date information on the incident. Rail 2 was to monitor the rest of the railroad.

The ROCC OM stated that once they got settled in, they conferred with the fire liaison and the Mac that was on duty as to who had command. Where were they at in the incident, where the

command post was located and made sure everyone was on the same page and started to take notes from when they took over.

The ROCC OM stated that while they were waiting for ERT to get to the scene, they went down and investigated the calls and the source of where the fire smoke was coming from, they were waiting for your ERT to get there and they were still turning back trains. The ROCC OM stated that they went in the back with the fire liaison and the Mac and the former Rail 1 was still there completing documentation.

The ROCC OM stated that they Verified who had command as far as unified Command, who was present at the command post, what other resources that they needed, and just ensuring that there were no personnel on the roadway. The fire department was still present, but they weren't on the roadway.

The ROCC OM stated that the Fire Department reported that they saw some smoke still coming from the tunnel. They requested the fans and they reported to the fire liaison that the fans were activated, according to the Emergency Ventilation playbook, they went through the playbook. The ROCC OM stated that the fire liaison read off the fans, they were operating in a direction according to the ventilation playbook. The fire department requested for fan FA4 to be operated in the reverse direction. The ROCC OM stated that they gave instruction to the maintenance lead to have the plant desk the fan in the opposite direction of what it was already in.

The ROCC OM stated that they there were no issues when ERT arrived on the scene, they made sure that they checked in at the command post before they went down. The AOM reported that they were waiting for an AMF before ERT can go down and inspect the area. The ROCC OM stated that they instructed Rail 2 to inspect under foul time because there was no train movement through the area, power was down, and instructed them to put the personnel that was going down to investigate just outside the interlocking at Dupont Circle under foul time protection to investigate. The ROCC OM stated that they were not quite certain if there was a time lapse.

The ROCC OM stated that they had begun the actual investigation while managing the incident itself. The ROCC OM stated that the incident was already at a steady state, there was no human life factors in danger at that. The ROCC OM stated that they were ensuring that they had service and was trying to figure out the ETA as to whether they would be able to open a section of track because they had to make arrangements to close the system late. Coordinating with bus, getting the buses there and ensuring that they can bridge that gap of the section of railroad that was shut down.

The ROCC OM stated that the phones are programmed for the fan desk and they do have an Automatic key on their phones. The ROCC OM stated that they think it's an automatic key for the RTCs to push instead of dialing the actual number to get to the plant, that's for the activation of the fans. The ROCC OM stated that if a controller can't get ahold of the plat desk, they still have access to activate the fan themselves, AIMS allow them to activate the fans. The ROCC OM stated that if the plant desk does not pick up the phone also rings on the maintenance lead desk. The ROCC OM stated that there has been a lot of training to activate the fans within the last two years with the transformation of the ROCC. The transformation team, the fan procedure went out and it was acknowledged through Metro Docs, where the employees will read the procedure. The SOP is a fan ventilation SOP that employees will read for understanding and comprehension and

they will digitally sign off on this actual SOP. The button controller is supposed to notify the plant desk that the fan activation is needed.

RTRA Supervisor #2 (Forward Liaison on platform at Dupont Circle)

The RTRA Supervisor stated he was told by the ROCC to go to Metro Center and head to Incident Command at Dupont Circle Station. The RTRA Supervisor stated he was tasked with assisting in liaison with the ROCC. The RTRA Supervisor stated at approximately 2400 hours (7/31), PWR assessed the issues were not High Voltage related.

The RTRA Supervisor stated while on the platform he heard three distinct explosions accompanied by smoke. The RTRA Supervisor stated the first explosion he compared to a "Mortar" with a significant amount of smoke that occurred at approximately 2330 hours "somewhere in the tunnel" on the Track 1 side. The RTRA Supervisor stated the second explosion occurred closer to the platform, emitted less smoke and noise and occurred at approximately 0000 hours. The RTRA Supervisor stated the final explosion occurred approximately 50 ft from the platform and emitted no smoke and less noise than the other two explosions.

The RTRA Supervisor stated he had significant experience with explosives, citing time spent in the military and was advised by subject matter experts on scene he and the other personnel were in a place of safety.

The RTRA Supervisor stated he observed Low Voltage Power personnel appear on scene at approximately 0100 hours. The RTRA Supervisor stated he observed hot-sticking of track 2 at approximately 0200-0230 hours. The RTRA Supervisor stated he was relieved at 0300 and attended the Hot Wash afterward.

ROCC AOM Rail 3 #2 (2200-0600)

The AOM stated that they took over their duties at 2200 hours, power was down, and trains were reversing. Rail 1 had conducted a briefing and assigned duties. The AOM reported to the Red Line Floor. ERT was arriving, Unit 21 was On-Scene Commander and MTPD were on the scene. Two additional Supervisors reported to assist.

The AOM stated that the Fire Department had arrived. Foul time was given to ERT, the fire was still ongoing. ERT returned to the platform with their tools. Rail 1 received video of the fire. The Fire Department requested the Power Department to assess. ATC, COMM and High Voltage reported to the scene. The Fire Department reported that there was nothing for them to do.

The AOM stated that there were reports of the fire making loud popping sounds. The wiring was cut at the junction box to stop the fire. The cables were investigated to determine who the fire belonged to. It was determined that the cable belonged to Low Voltage.

ROIC Manager #2 (2200-0600)

The ROIC Manager stated that they arrived and received a briefing from the previous ROIC Lead. The noticed that some messaging was incorrectly stating that the incident was located at Cleveland Park. Trains were reversing and some emails had conflicting reports. They reported receiving limited information from the outgoing shift on the full extent of the event and action plan moving forward. It took time for them to catch up to what resources were actually available for the bus bridge and to share useful information, such as using the line buses as an alternative.

Shuttle bus locations were provided by BOCC. The ROIC Manager stated that the Information Center was not chaotic and added that it would be helpful if during emergencies the personnel didn't leave without ensuring the new shift has a full grasp of the situation.

Train Operator of ID 103

The Train Operator reported that Train ID 103 was leaving Gallery Place when they heard a transmission of a problem outside of Woodley Park, involving Train 108. An RTRA Supervisor boarded Train ID 103 at Metro Center to investigate the event. At DuPont Circle, the Train Operator pulled onto the platform's edge and lost speed commands, then asked central for a block to the 8-car marker. The Train Operator observed some smoke in the station and notified ROCC that they would turn off their EV and alight passengers with all cars on the platform. They were later instructed to offload the train.

After offloading, the RTRA Supervisor keyed themselves off the train and inspected track 1 side from the platform. While this was occurring, the Train Operator verified the train was all clear of all customers and waited for instructions. The Radio RTC instructed Train ID 103 to change Train ID to 703 to conduct the inspection, then proceed to Tenleytown, service the station and continue on. While inspecting at slow speed with the supervisor in the operating cab, The Train Operator reported that they saw an insulator on fire on the opposite track while traversing to Woodley Park. After passing the area, they believed they resumed normal speed and continued. During the inspection, the RTRA Supervisor was having trouble contacting Radio RTC via radio.

The Train Operator was unsure whether the RTRA Supervisor used their WMATA-issued phone to contact ROCC. On arrival at Woodley Park, the RTRA Supervisor keyed themselves off and the Operator continued towards the next station.

MOC Manager #1 (1400-2200)

MOC Supervisor located the incident area [use of fire maps] after receiving a notification on the AIMS screen and contacted the Fire department to respond to that location. MOC Supervisor spoke with the dispatcher; moments later, the AOM stated it was two down track circuits. The

AOM notified the MOC Supervisor about an arcing insolation, then upgraded to a fire. The MOC Supervisor called the controller to inform them to be prepared to activate fans.

AOM asked about the fire department. The MOC Supervisor notified the AOM that they called the DCFEMS for the Drainage Pumping Station (DPS) area. The MOC Supervisor observed Train ID 108 headed to the incident area. The MOC Supervisor asked the AOM did Train ID 108 stop short of the DPS, reversed ends, or went back. The MOC Supervisor mentioned Twenty minutes into the situation Fire Department asked for exhaust instead of supply.

The alarm indication of AIMS turns Red and Specifies the location, time, etc. I pulled up a fire map to identify the location. It did not pop up on ADT. The MOC Supervisor cannot recall where the AOM received the report of Arcing Insulator.
Findings:

- FA 5 or FA 4 was changed from supply to exhaust closed to DuPont.
- PLNT Dispatched ERT to location
- PLNT dispatched communication
- Verbal communication to Fire liaison

Approximately 3-5 minutes of the time difference between the escalation of the down track circuit, arcing insulator, then a few minutes later a fire.
No definitive information was provided during the incident.
Recommendations: If a fire alarm goes off, be more descriptive to prevent lag time to dispatch the fire department.

Low Voltage Mechanic #1

The Low Voltage Mechanic has approximately three and half years as a Low Voltage Mechanic. During the SAFE interview, the Low Voltage Mechanic (LVM) stated their last certification date was April 30, 2022. The LVM stated their shift started at the Glenmont Yard Office at approximately 21:56 hours and they received their work assignment to conduct a light inspection at Twinbrook Station. The LVM reported their Supervisor then informed them of an emergency request received from MOC and instructed them to report to Dupont Circle Station for assistance at approximately 23:00 hours. They arrived on scene at Dupont Circle from Glenmont at approximately 24:00 hours and reported to the Incident Command Post where DCFD received their names before proceeding to the platform. The LVM stated they received their safety briefing on the platform and other employees along with DCFD were waiting on the platform for further instructions. They were waiting for the Red Tag to be issued before accessing the roadway. The LVM stated the only information they received was there was arcing within the tunnel. While waiting on the platform, they attempted to gain situational awareness within the AC Breaker Rooms. At approximately 03:00 hours, they were allowed to enter the roadway with the crew to investigate.

The LVM reported after they accessed the roadway, the found arcing near a junction box with the cover open between CM 80+00 and 81+00. They stated they isolated the power by splitting the wires and capping them. The LVM stated their action stopped the arcing as an emergency mitigation that would require additional repairs and assessment. The LVM reported they continued their investigation and found additional burnt wire between CM 85+00 and 87+00. They reported their actions to the supervisor. The LVM stated another work crew would be assigned to complete

the emergency mitigation for a permanent solution. The LVM reported they departed Dupont Circle at approximately 04:00 hours.

The LVM stated the only recommendation they had is to decrease the timeframe needed to enter the roadway. They stated as an emergency, the time it took to enter was too long as they were waiting on the platform while the emergency continued. The LVM stated having early access to the roadway to assess and mitigate the emergency situation may have prevented further damage to the equipment.

Low Voltage Mechanic #2

Low Voltage Mechanic has approximately 11 years as a Low Voltage Mechanic. During the SAFE interview, the Low Voltage Mechanic (LVM) stated their last certification date was July 6, 2022. The LVM stated their shift started at the Glenmont Yard Office and were gathering materials to go to Rockville and Twinbrook Stations. While in the process of gathering materials, they received notification from the supervisor to respond to Dupont Circle for an emergency request at approximately 23:00 hours. They stated they arrived on scene at Dupont Circle at approximately 24:00 hours. On arrival, the LVM reported they checked in at the Incident Command Post with DCFD and identified themselves as the LVM. DCFD informed them that there was fire in the tunnel, and everyone was standing by. The LVM stated they went to platform at approximately 00:15 hours and were informed they could not assess the roadway due to the Red Tag in process. They were shown pictures of the incident area and they conducted an assessment of the AC Rooms on both tracks to look for tripped breakers. They did not find any tripped breakers.

The LVM reported after checking the AC Room, they were standing by on the platform until approximately 03:00 hours to access the roadway and assess the emergency scene. They reported seeing arcing from the platform and then hearing a loud boom. After accessing the roadway, they reported seeing sparks coming a junction box with burning wires between CM 80+00 and 81+00. They stated they isolated the junction box and observed burnt wires from CM 80+00 to 87+00. The LVM stated if they had access to the area earlier, they may have prevented further damage to the low voltage cables in the area.

The LVM reported they believe the cause of the fire was the braided wires coming from different feeds into the junction box and heating up causing ignition. The LVM also stated having the proper tools when first on the scene could have prevented further damage to the cables. They stated after they mitigated the situation with temporary fix, they informed their supervisor of the actions taken. The LVM reported the junction boxes are inspected whenever they can access the track but could not provide a specific time interval in which those inspections occur.

The LVM stated they did not observe any issues with communications throughout the incident but did note the time frame it took to access the roadway. They reported if they were able to access the roadway to assess the situation, they may have been able to prevent further damage by isolating the power source before it spread. The LVM stated they have responded to emergencies previously and are properly trained to mitigate similar instances.

RTRA Supervisor

The RTRA Supervisor stated he was told by the ROCC to go to Dupont Station and assess a fire alarm situation. The RTRA Supervisor stated he arrived on scene and observed what he believed to be dissipating smoke coming from the Track 1 side of the tunnel between Woodley Park Station

and Dupont Circle Station. The RTRA Supervisor stated the ROCC asked for a chain marker for the point of origin, however, this was unobservable from his position at Dupont Circle Station.

The RTRA Supervisor stated he then boarded a train on Track 2 from Dupont Circle Station to Woodley Park where he was able to observe 4-6 inches of smoking cable located on the outside wall, closest to track 1 as the point of origin. The RTRA Supervisor stated he observed this at CM A01 088+00. The RTRA Supervisor stated he then rode to Cleveland Park, where he was picked up by MTPD and returned to Dupont Circle station. There he linked with Incident Command and remained on the upper level as the RTRA Forward Liaison. He observed from that position for the remainder of his shift and assisted with requesting resources and providing updates to ROCC. He observed the departure and return of DCFEMS, as well as a team of Low Voltage, High Voltage, ATCM and ERT personnel arriving at different times.

The RTRA Supervisor stated he remained on scene until 0200.

Buttons RTC

The RTC stated that they received a briefing update on all consoles. When they arrived, the trains were already reversing, SOP 1A was established and two Rail Supervisors were at the incident location. The RTC took over managing trains and established shuttle bus service. The RTC stated that Unit 21 was available and MTPD picked up the other Supervisors. The RTC stated that there were communication issues between Woodley Park and Dupont Circle. ERT personnel were on the platform waiting for more personnel and equipment.

The RTC stated that the Station Manager and Unit 21 were used to relay information. Unit 21 was the on-scene commander, then the forward liaison helping the officers on the scene. ERT reported a cable sparking and requested power personnel. High Voltage arrived, then ERT requested Low Voltage.

The RTC stated that management in the ROCC is responsible to contacting and dispatching power crews. They relayed the information to Rail 3, and they made a transmission that the power crew was notified. Rail 1 and 3 were standing behind them during the incident.

OEP MAC

The MAC stated he received a notification of a fire alarm at 2109 hours and that the nearest DPS was located at 2400 Beach Drive. The MAC stated the OM of Rail 1 walked over and advised there were sparks in the tunnel observed by a Train Operator and that it was likely an arcing insulator. Approximately 30 seconds later, OM Rail 1 returned and stated smoke was in the tunnel.

The MAC stated he observed smoke in the tunnel between Woodley Park Station and Dupont Circle Station on camera and advised Rail 1 to evacuate Dupont Circle Station at approximately 2120 hours. The MAC stated he was advised fans were being activated to exhaust the smoke. The MAC stated a second MAC operator arrived on scene and temporarily took over the desk. The MAC stated he then went to Rail 1, 2 and 3 and advised again the station needed to evacuate. The MAC stated AOM Rail 1 planned to continue to run exhaust fans and offload a train to run as an inspection train. The MAC stated he did not know Rail 1 planned to evacuate the train at Dupont Circle Station.

The MAC stated when the MTPD incident commander got on scene, he implemented coordinating the arrival of multiple assets that the MAC was inquiring with Rail 1 about. The MAC stated the arcing insulator information was passed to the FLO who liaised directly with DCFEMS.
The MAC stated concluded his shift at 2210 hours.

Response and Recovery Specialist

The Response and Recovery Specialist has approximately 14 years. 13 years with OEM, 9 months as a DVEU Manager, and 5 months as a Response and Recovery Specialist (RRS).
During the SAFE interview, the RRS stated as they walked into the Operations Control Center at approximately 21:20 hours, an emergency situation was under way. The emergency at the time was classified as smoke in tunnel at Dupont Circle. The RSS reported customers were being removed from the train and the train was standing by on the platform, in the direction of Shady Grove. They stated the focus was to get the customers out of harm's way and out of the station. The RSS witnessed Train ID 108 being instructed to reverse ends and proceed to back Woodley Park away from the emergency scene. The RSS stated they began the coordination of bus services and assumed their position at the MAC desk. Other duties included drafting the notification within the two-hour window for the WMSC and receiving the ROCC Superintendent briefing. The RSS reported they officially assumed MAC duties at 22:00 hours. The RSS contacted their director and was informed to reclassify the incident from a smoke event to an A-4 Station Evacuation For Life Safety Reasons. The RSS contacted the WMSC via landline to report the incident at approximately 22:26 hours.

The RSS stated they were located within the ROCC for the entire incident and maintenance efforts were still ongoing when they finished their shift at 06:00 hours. They reported the Incident Command Post was established at 20th and Q Streets with MTPD and DCFD. The RSS reported the communications went smooth as MTPD and DCFD coordinated quickly after arrival on scene. The RSS stated additional safety parameters were being coordinated by the ROCC Superintendent which included a Red Tag Outage due to the unknowns at the emergency site. They stated the power had been deenergized on both tracks before ERT arrived on scene. The plan was for ERT to go to CM A1 88+00 to assess the scene, perform mitigation activities if possible or determine what maintenance activities were required to mitigate to scene. The ERT reported to the RSS stated sparks were still present when they arrived on site and requested DCFD to return. The ERT immediately exited the scene. The RSS stated DCFD had initially cleared the scene but returned and reestablished unified command with MTPD. The RSS reported DCFD returned to the platform at Dupont but did not enter the roadway. The RSS stated DCFD requested a red tag due to the electrical issue as they did not want any type of electricity near the tracks. As the red tag procedure was in progress, the RSS reported various departments convened at the site and assessed each room and traction power substation between Woodley Park and Dupont Circle to ensure all breakers were out and no electricity was anywhere on the tracks. At this time, the RSS reported additional resources were requested which included High voltage power, low voltage power, ATC and additional track personnel. After the red tag was completed, all additional resources that were requested proceeded on the roadway and to the emergency site to assess the situation. At the this, the RSS reported low voltage personnel was able to determine which cable needed to be repaired.

The RSS stated the radio communications within the area was poor in regard to hearing the crews. There were times were ERT could not hear OCC communicating with them. The RSS reported the radio communications stood out to them during the incident as responding crews had difficulty

hearing each other in the field. They stated they were not sure if the fire damage had contributed to the radio communications being spotty.

ERT RWIC

The ERT RWIC stated he received a call from the MOC at approximately 2130 hours to respond to an event of an arcing insulator within the vicinity of Dupont Circle Station. The ERT RWIC stated he arrived on scene at approximately 2200 hours, checked in with the on-scene commander and began equipping his team to repair an arcing insulator. The ERT RWIC stated he got to the platform and was advised ERT would be taking over jurisdiction from ATC, which was questioned by MTPD on scene.

The ERT RWIC stated he then entered the roadway after gaining permission from the ROCC and observed the fire event and immediately concluding that it was not an arcing insulator, as the sparking he observed was high on the wall, rather than from the ground. The ERT RWIC stated he remained at a safe distance and reported the fire to central at approximately 2250 hours. The ERT RWIC stated he requested Fire Department, high voltage, low voltage and COMR to respond to the scene and cleared the roadway, as he was not equipped to mitigate the issue.

The ERT RWIC stated the DCFEMS advised him they required a Red Tag Outage to enter the roadway, however, once it was acquired at approximately 0210 hours, DCFEMS advised they would not be responding to the roadway based on the nature of the fire. The ERT RWIC stated he observed and took photographs of the damage spanning approximately CM A1 85+00 to 87+00. The ERT RWIC stated his work zone was set up between 0200 and 0300. The ERT RWIC stated he was relieved at approximately 0330 hours.

ROIC Lead

ROIC Lead reported that they notified Rail 1 after receiving a message from the Station Manager. Rail 1 instructed them to evacuate Dupont Circle Station. The ROIC Lead instructed personnel to make PA Announcements and contacted BOCC for shuttle bus service.

The ROIC Lead reported that at approximately 21:24 hours, third rail was de-energized on track one. They asked Rail 1 if the source of the smoke/fire was an insulator. Rail 1 replied that it was likely, but they weren't sure. The ROIC Lead sent messaging out as insulators causing the smoke until they had a better report.

Rail 1 informed the ROIC Lead that the train were single tracking and shuttle bus service was cancelled. They continued to update the messaging. The ROIC Lead did provide Everbridge messaging because the incident was not an "A" Level event. At the time of the ROIC Lead's departure there was not an update to the cause of the incident.

The ROIC Lead added that Station Manager's should have more responsibly in this type of incident. The Station Manager is RWP certified and could have went to the roadway to confirm what the issue was.

MOC Maintenance Manager

The MOC Maintenance Manager has approximately 18.5 years of service including 10 years as a MOC Maintenance Manager, five years as a Safety Officer and three and half years as a Track

Mechanic. During the SAFE interview, the MOC Maintenance Manager (MM) reported they came on duty at approximately 22:00 hours as the emergency event was already underway. The MM stated the initial report came in as a fire alarm in the DPS and some track circuits were down in the same area. Later the incident was identified as cables burning on the wall adjacent to catwalk near CM A1 84+00. The MM stated DCFD, ERT and other emergency response personnel were already dispatched and on scene. The situation was still being to determine by the On Scene Commander and they were receiving situational updated reports to identify which department was responsible for the burning cables. The MM stated they dispatched both high voltage and low voltage personnel to the scene to identify the cables. The MM reported they were attempting to pinpoint which breakers were controlling the cables in questions. This assessment was ongoing for most of the night as the low voltage personnel identified the which cables were burning at approximately 03:30 hours. The MM reported DCFD determined the incident to be maintenance issue and cleared the scene. The MM stated Rail Managers were organizing the work areas to setup and work areas throughout the incident location. They stated they were monitoring the situation and dispatching resources when requested by ERT via the Rail Managers.

The MM reported they received a request to dispatch low voltage personnel to scene from the Rail Managers after ERT determined in the incident was not arching insulators but burning cables on the wall. They stated they could not recall how the call into MOC. The MM stated once they were notified the issue was burning cables on the wall, they knew from their experience who to dispatch and they notified personnel from Power, Communications and ATC tom determine who were responsible for the cables. As they night continued, power was active to burning cables and they to burn until low voltage personnel disconnected the source. They also stated they received a video from ERT of the cable burning. The MM reported they use an Emergency Playbook to determine which resources to dispatch but they knew which units to dispatch based off their experience. They stated during most emergency situations, they only dispatch units that are requested after the scene is assessed by responding units. The MM also stated their office is responsible for calling 911 and requesting external resources to respond in emergency situations. The also notify all internal departments of the situation including Rail 1, 2 and 3 and the MAC, normally verbally in addition to maintaining a logbook. The MM reported there were issues with radio communications in the affected area where the cables were burning.

Appendix B – AIMS Signals

21:07:19.858D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
22:52:06.230D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
22:53:15.814D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
22:53:16.784D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
22:53:19.956D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
22:53:21.032D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
22:53:28.286D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
22:53:30.381D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
22:55:20.667D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
22:55:21.667D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
22:55:22.667D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
22:55:28.952D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
22:55:29.966D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
23:02:32.952D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
23:02:43.128D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
23:02:44.113D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
23:02:53.403D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
23:02:54.404D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
23:02:58.640D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
23:02:59.686D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
23:03:17.006D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
23:03:18.038D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off
23:03:36.769D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active
23:03:38.816D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Off

Additional AIMS Signals between DPS #2 and the ROCC. Additional Signals were a result of additional lines failing as a result of the fire.

21:07:41.271D 07/30/22	L'Enfant Pl LL	VD6 Ventilation Shaft Damper CURRENT STATE = Abnormal
21:07:48.879D 07/30/22	L'Enfant Pl LL	VD6 Ventilation Shaft Damper CURRENT STATE = Abnormal ACKNOWLEDGED BY 013190 AT ctwksatcpp
21:07:48.879D 07/30/22	Dupont Circle	A03-1 Subway Drainage Pumping Station CURRENT STATE = ACKNOWLEDGED BY 013190 AT ctwksatcpp
21:07:48.879D 07/30/22	Dupont Circle	A03-22 Fire Alarm CURRENT STATE = Active ACKNOWLEDGED BY 013190 AT ctwksatcpp
21:07:48.879D 07/30/22	Silver Spring	ROUTE B08-38-44 FAILURE OF ENTRANCE REQUEST ACKNOWLEDGED BY 013190 AT ctwksatcpp
21:07:48.879D 07/30/22	Addison Road	ROUTE G03-8-6 FAILURE OF EXIT REQUEST ACKNOWLEDGED BY 013190 AT ctwksatcpp
21:07:48.879D 07/30/22	Innovation Center	N09-5 Unauthorized Entrance Alarm CURRENT STATE = Sec ACKNOWLEDGED BY 013190 AT ctwksatcpp

Appendix C – MTPD Hot Wash

Metro Transit Police Department Hot Wash Summary

ADMINISTRATION HANDLING INSTRUCTIONS

This report will be completed after a debriefing or "hot wash" in accordance with applicable department policies/directives and procedures; at the request of the Chief of Police or designee or following any incident or event requiring the activation of the Incident Command System (ICS). The purpose of the report is to provide information, assess response, identify training, equipment needs, and to identify areas that may require improvement. After completion of this report, it should be forwarded to the Deputy Chief through the chain of command for review.

This report and any attachments are classified as For Official Use Only. This report may be used for emergency incidents, special events, and exercises. **Items marked with an asterisk (*) will be completed by the last official designated as the Incident Commander (IC) as there may be more than one IC during the incident.**

INCIDENT SUMMARY

Incident Requiring ICS Activation:			
***Incident Commander (IC):**	[redacted]		
MTPD CCN:	2022-04311	**Local CCN:**	2022-04311-HW-0001
***Date ICS Initiated:**	7/30/2022	***Time ICS Initiated:**	0001-01-01T21:32:00
***Date ICS Terminated:**	7/31/2022	***Time ICS Terminated:**	0001-01-01T02:44:00
***Duration of Incident:**	5Hr 12 Min	***Service Disrupted (Type and Time):**	Y - Yes 7/30/2022 9:18:00 PM
Incident Location:	DPCL	**Command Post Location:**	DPCL
MTPD On-Scene Commander (OSC):	[redacted]	**Command Aid for OSC:**	[redacted]
Forward Liaison:	[redacted]	**Unified Command:**	
OCC Liaison:	[redacted]	**Alternate Channel:**	mtpd2x
Single Tracking (Time & Track No.):	N - No	**Bus Bridge Established (From /To):**	Y - Yes vnes/farn
Inner and/or Outer Perimeter:	No Yes	**Power De-energized:**	Y - Yes

Document 1 – MTPD Hot Wash, Page 1 of 4

OSC Relinquished Scene Command to Name **Dept:**	Y - Yes [redacted]	**Medical Attention Required/Requested:**	N - No
Entry/Exit Log:		**CID Response:** N - No	

For Official Use Only

The information in this document marked FOUO is the property of the Washington Metropolitan Area Transit Authority's Metro Transit Police Department (MTPD) and may be distributed within the Federal Government (and its contractors) to law enforcement, public safety and protection, intelligence officials and individuals with a need to know. Distribution to other entities without prior MTPD authorization is prohibited. Precautions shall be taken to ensure this information is stored and destroyed in a manner that precludes unauthorized access. Information bearing the FOUO marking may not be used in legal proceedings without prior authorization from the originator. Recipients are prohibited from posting information marked FOUO on a website or unclassified network.

Metro Transit Police Department
Hot Wash Summary

WMATA and EXTERNAL ON-SCENE PERSONNEL		
Name	**Department/Office**	**Title/Role**
[redacted]		d1b
[redacted]		d1b
[redacted]	dcfd	Battalion Chief, Firehouse 4
[redacted]		d1b
[redacted]		d1b
[redacted]		d1b
[redacted]		d1b

Use separate sheet if additional space is required.

Document 2 - MTPD Hot Wash, Page 2 of 4

MTPD-OSP-TMPL-009-00

Metro Transit Police Department
Hot Wash Summary

REQUESTS	
***Radio Run Requested (Yes/No):**	N - No
If "Yes," location where tape is stored:	
***Digital Video Evidence Unit (DVEU) Video Requested (Yes/No):**	N - No
If "Yes," location where video is stored:	

OBSERVATIONS

2118- units dispatched for active fire alarm

2122- updated heavy smoke in Dupont Circle Station, station evacuated

2124- third rail power dropped.

2126-confirmed no stranded trains, all trains clear effected area

2132-command established

2135-fire confirmed A1-088+00

2146-service suspended (trains had not run since approximately 2120)

2150-bus bridge established

2155-additional smoke seen, vent fans adjusted to evacuate smoke from tunnel

2230-FD clears scene

2256-additional fire located at A1-081+00, FD requested to return

2324-small explosion reported near tunnel entrance

2345-red tag initiated

2355-low voltage power on scene to mitigate hanging wire causing electrical fire, waiting for red tag to be complete.

0230-Red tag procedure complete. ERT enters roadway to inspect and work on mitigation plan.

Document 3 - MTPD Hot Wash, Page 3 of 4

0240- ERT Supervisor [redacted] assumes control of scene. Hot wash conducted, MTPD units clear.

Hot Wash Notes:

Communication was good. RTRA supervisor [redacted] commented that all of the information came from and through the MTPD on scene commander which resulted in less confusion.

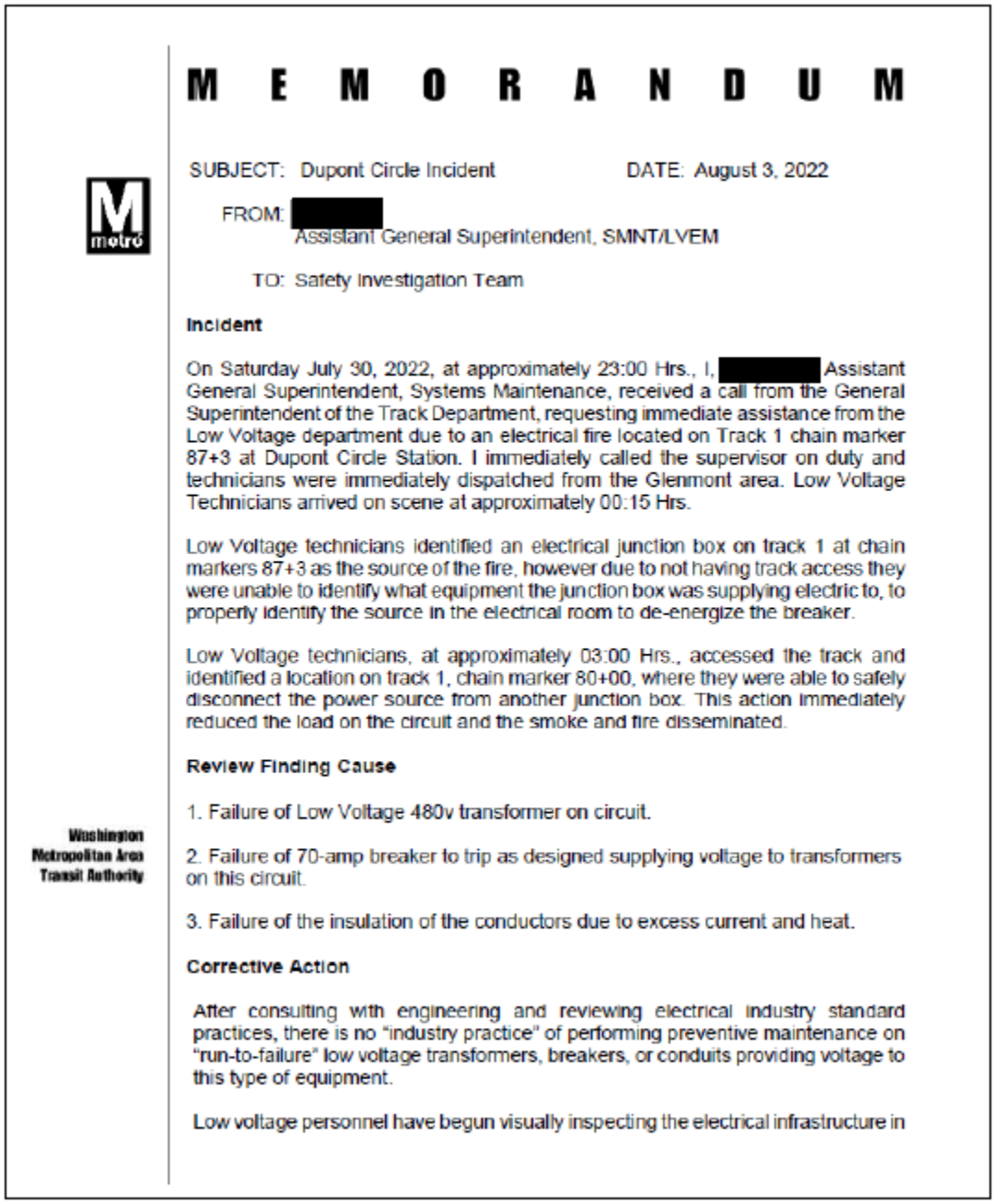
Initial setup of the bus bridge was clumsy however BTRA Supervisor [redacted] arrived on scene and did an excellent job organizing the bus bridge quickly, as well as coordinating with ROCC to ensure no passengers were stranded.

FD clearing early made it more difficult when they had to be called back to the scene. Conversely Captain [redacted] from DCFD commented that WMATA needs a subject matter expert on the tunnels so that they can recognize what the core issue is and have the correct department respond to the scene more quickly. There was a lot of time spent trying to ascertain what department was responsible for the effected wires causing the electrical fire. This made it challenging while formulating an action plan for mitigation. Otherwise MTPD, FD, AND WMATA personnel worked collaboratively and shared all pertinent information.

At one point it was not clear if power units were on scene. A quick communication with [redacted] relayed the message to the power units to respond to the command post which they promptly did. All units responding to the scene diligently checked in with MTPD personnel at the command post. This resulted in a good and accurate account of who was on scene when they were needed.

Document 4 - MTPD Hot Wash, Page 4 of 4

Appendix D – Low Voltage Incident Report



M E M O R A N D U M

SUBJECT: Dupont Circle Incident DATE: August 3, 2022

FROM: [redacted]
Assistant General Superintendent, SMNT/LVEM

TO: Safety Investigation Team

Incident

On Saturday July 30, 2022, at approximately 23:00 Hrs., I, [redacted] Assistant General Superintendent, Systems Maintenance, received a call from the General Superintendent of the Track Department, requesting immediate assistance from the Low Voltage department due to an electrical fire located on Track 1 chain marker 87+3 at Dupont Circle Station. I immediately called the supervisor on duty and technicians were immediately dispatched from the Glenmont area. Low Voltage Technicians arrived on scene at approximately 00:15 Hrs.

Low Voltage technicians identified an electrical junction box on track 1 at chain markers 87+3 as the source of the fire, however due to not having track access they were unable to identify what equipment the junction box was supplying electric to, to properly identify the source in the electrical room to de-energize the breaker.

Low Voltage technicians, at approximately 03:00 Hrs., accessed the track and identified a location on track 1, chain marker 80+00, where they were able to safely disconnect the power source from another junction box. This action immediately reduced the load on the circuit and the smoke and fire disseminated.

Review Finding Cause

1. Failure of Low Voltage 480v transformer on circuit.

2. Failure of 70-amp breaker to trip as designed supplying voltage to transformers on this circuit.

3. Failure of the insulation of the conductors due to excess current and heat.

Corrective Action

After consulting with engineering and reviewing electrical industry standard practices, there is no "industry practice" of performing preventive maintenance on "run-to-failure" low voltage transformers, breakers, or conduits providing voltage to this type of equipment.

Low voltage personnel have begun visually inspecting the electrical infrastructure in

Washington Metropolitan Area Transit Authority

Document 5 – Low Voltage Incident Report, Page 1 of 2

underground tunnels to identify electrical hazards such as loose cables, broken receptacle covers, corrosion, and water leaks on or near electrical equipment.

Inspectors will document issues found during the inspections, taking pictures, and noting chain markers. Management will create work orders to document correction or mitigation of problems found.

Any further questions or clarifications needed concerning this incident please feel free to contact the office of Systems Maintenance Low Voltage Electrical Systems.

Document 6 - Low Voltage Incident Report, Page 1 of 2

Appendix E – Low Voltage Sketch and Image

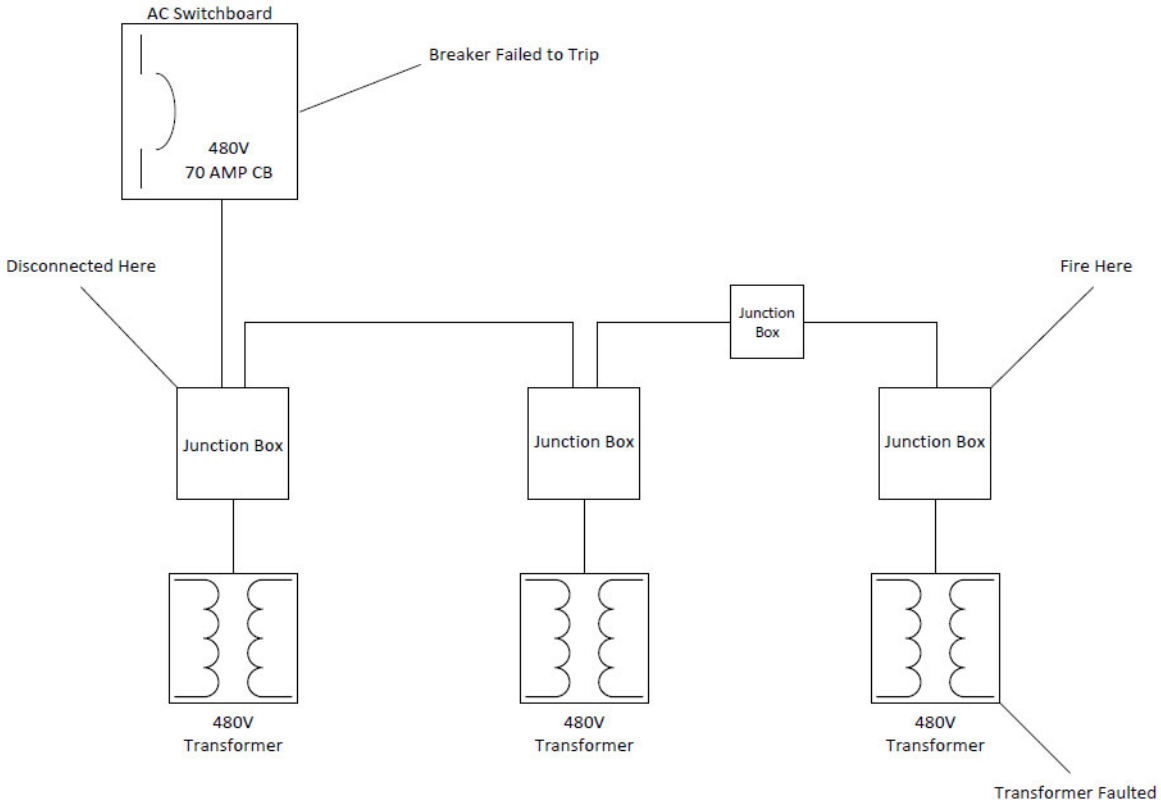


Image 2 - The original AC one-line drawing depicts a 70A breaker when in fact, the switchgear was upgraded and the breaker is now a 150A with a 100A trip setting.
"NUB" on name plate stands for "North Utility Board" and TT6, TT7, and TT12 are the 3 transformers that are being fed.

Appendix F – ATCM Incident Report

The following is a timeline for A03 events to the best of my knowledge...

22:18 Received call from MOC about CM 17227025 A03 False occupancy

23:45 Arrived on site Crew had turned off track circuits for safety of equipment

01:05 DCFD and other metro departments were on site waiting to access the roadway, arching and explosions were still happening

02:58 All personnel were still waiting, arching and explosion going on

03:59 Trk 631 took area, turned on all track circuits and entered roadway for inspection

04:50 Conducted inspection for findings in EOSR, left roadway and most ATC personnel left not wanting to stay or could not

05:15 Entered TCR to update logbook and turn off circuits but was told by OCC to leave then up except for the damaged circuits

05:45 After finishing up in TCR the crew returned to reporting location and are waiting for instructions

05:55 Cleared with track unit 631 and gave MOC full update

Please see EOSR for all other particulars and info

Regards,

[redacted]
B99 ATCM MID Shift Supervisor
Office: [redacted]
Cell: [redacted]
[redacted]@wmata.com

Appendix G – MAC and Rail 1 Expectations Memorandum

M E M O R A N D U M

SUBJECT: MAC and RAIL1 Expectations DATE: September 15, 2022

FROM: [redacted] Director, Response and Recovery Coordination

[redacted]

TO: All MAC and RAIL1 Personnel

The collaborative and cohesive working relationship between RAIL1 and the Mission Assurance Coordinator (MAC) is a critical component of successful incident resolution and safety oversight for Metro. We recognize that most incidents are resolved quickly and professionally noting that the relationship requires continuous communication throughout the shift. In an effort to promote continuous learning and process improvement we would like to highlight our expectations of both roles to enable effective communications. These expectations include:

- **All events in the system that are relayed to RAIL1 get communicated to the MAC, and vice versa.** Each party has a unique and important lens by which they view an incident. Due to these perspectives, parallel tracks of operational and safety oversight can occur. The visibility of the start of an incident occurring in the system should be near-simultaneous for both parties. In our zero-fail safety culture, we have encountered incidents that were not conveyed or conveyed very late. For example, if a train becomes disabled RAIL1 should immediately inform the MAC of the occurrence and not wait until a maintenance procedure has proven to be ineffective to solve the issue. While troubleshooting procedures are occurring, the expectation from SAFETY is that the MAC should preplan safety assurance measures. In the same regard, if an incident originates where the MAC has first visibility (an MTPD radio report of shots fired in a RAIL station for example), the MAC must immediately inform RAIL1.

Washington Metropolitan Area Transit Authority

Document 7 – MAC and Rail 1 Expectations, Page 1 of 2

- **Incident Categorization must be a joint process between RAIL1 and the MAC.** The ROCC incident management procedure (100-ROCC-ALL-03-04) states the MAC is to be both consulted and informed regarding incident categorization. This must occur before an alert gets sent to meet the intent of the established policy. If every event that comes to the back of the room is treated as an incident and properly discussed, there should be no issue with this expectation.

- **In future workstation layouts, the MAC will be physically located next to RAIL1 to enable better communication between both parties.** When an incident occurs, the expectation is that both the MAC and RAIL1 are physically located at their console. Joint decision-making cannot occur without both parties being physically present with each other. If information is required of others in the room, telephones should be utilized. A common best practice of incident management is to keep the command element in one location and not be mobile. Information must be brought to the command team, in our case the Big-3, and we must guard against going mobile even if steps away from the desk.

It is inherent upon each of you, the leaders of this organization to hold all team members accountable to these expectations. We expect that issues of non-compliance with these expectations get elevated as we take these expectations seriously as they relate to safety, customer experience, and operational efficiency. We also welcome feedback to continue to drive improvements in the way in which we operate. Thank you for your efforts to support these endeavors at WMATA.

Document 8 - MAC and Rail 1 Expectations, Page 2 of 2

Appendix H – GOTRS Track Rights Request

GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
Dates Requested:	07/31/2022 11:00 to: 08/01/2022 04:00	**Clear In Ten:**	False
Request Status:	Closed	**Equipment on Track:**	1
Requestor:	[redacted]	**Allow Piggybacks:**	True
Requestor Organization:	ATCM	**In Piggyback:**	No
Switch Order:	Closed (2022212512)	**Power Outage:**	Red Tag Red Tag
Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

Location, Work Type and Description

Location:	Mainline
Non-Wayside Location Type:	
Request Type:	Emergency
Charge Job Number:	
Contract Number:	
Maximo Work Order:	
Request Group:	No
Location Description:	Fire incident area around A1- 80+50 track 1
Request Description:	Incident investigation and repair
Work Type:	Other
Meeting Location:	A03 Dupont
PB Meeting Location:	
Tools and Equipment:	
Equipment on Track:	PM

Track 1			Track 2		
Actual Work Area:	A050+23	A166+90	**Actual Work Area:**	A051+42	A166+90
Protected Work Area:	A045+23	A171+90	**Protected Work Area:**	A046+42	A171+90

Hot Stick Info. Third Rail Gaps:

From	To	Track ID
A045+23	A073+91	1
A074+48	A108+19	1
A108+75	A126+16	1
A126+44	A127+24	1
A127+50	A156+73	1
A157+29	A171+90	1
A046+42	A072+24	2

As of 08/02/2022 16:03
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GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
Dates Requested:	07/31/2022 11:00 to: 08/01/2022 04:00	**Clear In Ten:**	False
Request Status:	Closed	**Equipment on Track:**	1
Requestor:	[redacted]	**Allow Piggybacks:**	True
Requestor Organization:	ATCM	**In Piggyback:**	No
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Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

A072+66	A073+91	2
A074+34	A108+19	2
A108+75	A126+94	2
A127+50	A156+73	2
A157+29	A171+90	2

Date & Time

Start: 07/31/2022 11:00 **End:** 08/01/2022 04:00

Contacts

Entered by

Pat Alt
ralt@wmata.com

Work: [redacted]
Cell: [redacted] **Home:** 4109777637

Requestor

[redacted]

Work: [redacted]
Cell: **Home:**

WMATA Manager

[redacted]

Work: [redacted]
Cell: [redacted] **Home:**

Emergency Contact

[redacted]

Work: [redacted]
Cell: [redacted] **Home:** [redacted]

Support

SUPPORT GROUP	Crew Size
ATCM	4
ESCORT GROUP	**Crew Size**
TRST/TRACK	4
SMNT/PWR	4

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GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
Dates Requested:	07/31/2022 11:00 to: 08/01/2022 04:00	**Clear In Ten:**	False
Request Status:	Closed	**Equipment on Track:**	1
Requestor:	[redacted]	**Allow Piggybacks:**	True
Requestor Organization:	ATCM	**In Piggyback:**	No
Switch Order:	Closed (2022212512)	**Power Outage:**	Red Tag Red Tag
Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

Request Change History

Date	Event
07/31/2022 14:46	Request was created.
07/31/2022 15:18	Request status was changed to Approved Comment: Emergency inspection
07/31/2022 16:50	Work Prep was completed.
07/31/2022 17:51	Request status was changed to Opened
07/31/2022 18:15	Rail Traffic Controller Comment was updated.
07/31/2022 18:19	Rail Traffic Controller Comment was updated.
07/31/2022 18:41	Rail Traffic Controller Comment was updated.
07/31/2022 21:35	Work Prep was edited. Field(s) changed: Unit #. Unit #: [redacted] to [redacted].
07/31/2022 23:49	Work Prep was edited. Field(s) changed: Unit #. Unit #: [redacted] to [redacted]
08/01/2022 09:38	Request status was changed to Closed

Request Group

Request Number	Description

Piggyback

No active piggybacks found

Switch Order

SO #: **2022212512**

SO Status: Closed

Lock Out/ Tag Out: No

Location & Equipment Requested

A02TP (A050+23) A05TB (A166+90) TRK 1
A02TP (A051+42) A05TB (A166+90) TRK 2

Remarks:

As of 08/02/2022 16:03
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GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
Dates Requested:	07/31/2022 11:00 to: 08/01/2022 04:00	**Clear In Ten:**	False
Request Status:	Closed	**Equipment on Track:**	1
Requestor:	[redacted]	**Allow Piggybacks:**	True
Requestor Organization:	ATCM	**In Piggyback:**	No
Switch Order:	Closed (2022212512)	**Power Outage:**	Red Tag Red Tag
Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

Red Tag information

Tag #:	Red Tag

De-Energization

Equipment Location	Equipment
A05TB	41
A05TP	32
A05TP	31
A05TP	34
A05TP	33
A04TB	43
A04TB	45
A04TB	44
A04TB	42
A04TB	41
A03TP	32
A03TP	31
A03TP	34
A03TP	33
A03TB	44
A03TB	46
A03TB	43
A03TB	42
A03TB	41
A02TP	32
A02TP	31
A05TB	42

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Document 12 - GOTRS Track Rights Request, Page 4 of 8

GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
Dates Requested:	07/31/2022 11:00 to: 08/01/2022 04:00	**Clear In Ten:**	False
Request Status:	Closed	**Equipment on Track:**	1
Requestor:	[redacted]	**Allow Piggybacks:**	True
Requestor Organization:	ATCM	**In Piggyback:**	No
Switch Order:	Closed (2022212512)	**Power Outage:**	Red Tag Red Tag
Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

Energization

Equipment Location	Equipment
A05TB	41
A05TP	32
A05TP	31
A05TP	34
A05TP	33
A04TB	43
A04TB	45
A04TB	44
A04TB	42
A04TB	41
A03TP	32
A03TP	31
A03TP	34
A03TP	33
A03TB	44
A03TB	46
A03TB	43
A03TB	42
A03TB	41
A02TP	32
A02TP	31
A05TB	42

Comments

By	On	Comment

Document 13 - GOTRS Track Rights Request, Page 5 of 8

GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
Dates Requested:	07/31/2022 11:00 to: 08/01/2022 04:00	**Clear In Ten:**	False
Request Status:	Closed	**Equipment on Track:**	1
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Requestor Organization:	ATCM	**In Piggyback:**	No
Switch Order:	Closed (2022212512)	**Power Outage:**	Red Tag Red Tag
Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

Comments

Pat Alt	7/31/2022 10:46:51 AM	This is emergency work for investigation and repair at A03 roughly CM 80+50

Close-Out Summary

Final Status:	Closed
RWIC has contacted RTC to establish working limits:	07/31/2022 13:51
Authorize Switch Order Execution:	07/31/2022 14:10
De-Energization Completed/RWIC notified:	07/31/2022 15:28
Hot Sticking:	07/31/2022 16:29

From	To	Track ID	Waive(?)	Unit #	Chain Marker	Entered By	Date
A157+29	A171+90	2		283	A160+00	Christopher E Allen	07/31/2022 16:29
A157+29	A171+90	1		283	A160+00	Christopher E Allen	07/31/2022 16:29
A045+23	A073+91	1		283	A060+00	Christopher E Allen	07/31/2022 16:29
A127+50	A156+73	2		283	A128+00	Christopher E Allen	07/31/2022 16:29
A126+44	A127+24	1		283	A127+00	Christopher E Allen	07/31/2022 16:29
A108+75	A126+94	2		283	A109+00	Christopher E Allen	07/31/2022 16:29
A108+75	A126+16	1		283	A109+00	Christopher E Allen	07/31/2022 16:29
A074+34	A108+19	2		283	A090+00	Christopher E Allen	07/31/2022 16:29
A072+66	A073+91	2		283	A073+00	Christopher E Allen	07/31/2022 16:29
A074+48	A108+19	1		283	A080+00	Christopher E Allen	07/31/2022 16:29
A046+42	A072+24	2		283	A060+00	Christopher E Allen	07/31/2022 16:29
A127+50	A156+73	1		283	A129+00	Christopher E Allen	07/31/2022 16:29

Permission is given to setup worksite:	07/31/2022 16:31
RTC authorization to start work is given to RWIC:	07/31/2022 16:31
PDC confirmed working limits are clear:	08/01/2022 05:32
RTC confirmed working limits are clear:	08/01/2022 05:38
Energization by PDC completed:	08/01/2022 06:09

Document 14 - GOTRS Track Rights Request, Page 6 of 8

GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

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Request Number:	202221200100	**Track Access:**	True
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Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

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GOTRS - GENERAL ORDERS & TRACK RIGHTS SYSTEM
Track Rights Request

Request Summary

Request Number:	202221200100	**Track Access:**	True
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Request Status:	Closed	**Equipment on Track:**	1
Requestor:	[redacted]	**Allow Piggybacks:**	True
Requestor Organization:	ATCM	**In Piggyback:**	No
Switch Order:	Closed (2022212512)	**Power Outage:**	Red Tag Red Tag
Lock Out / Tag Out:	No	**Additional AC:**	
Request Title:	EMERGENCY - A03-A06 Incident investigation and repair		

Close-Out Summary

Rail Traffic Controller Comment: 1414 PM50 is making moves in B99 yard. Waiting on their request. Waiting on Contractor to arrive at the yard with supplies.
1441 PM50 requested a mechanic to the yard. Mechanical issues with the unit.

Assistant Operations Manager Comment:

Requestor Comment:

Delays

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Document 16 - GOTRS Track Rights Request, Page 8 of 8

Appendix I - Root Cause Analysis

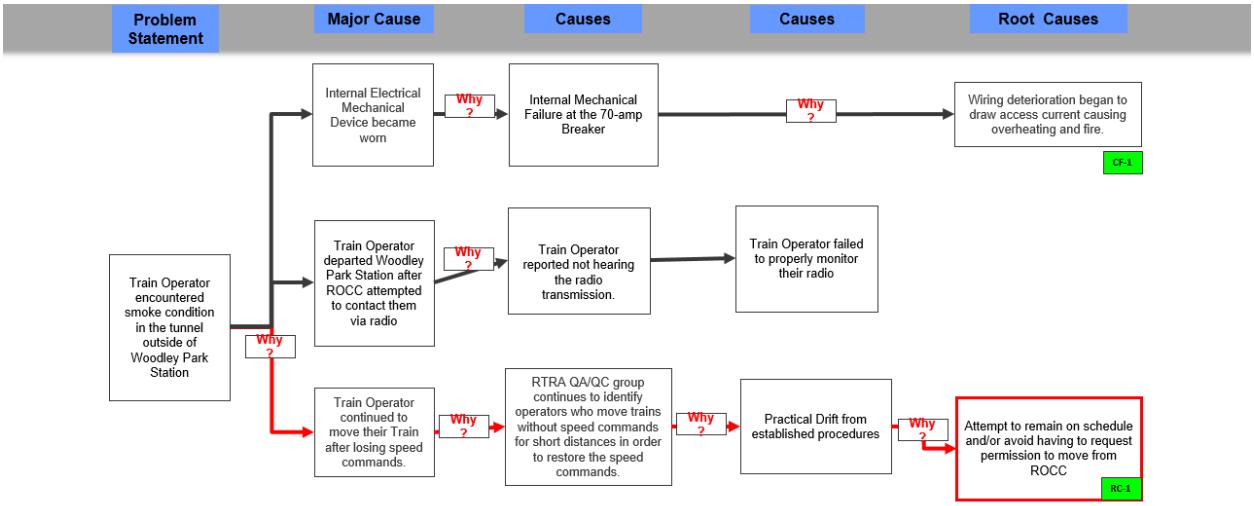

Figure 6 – Root Cause Analysis, Page 1 of 3

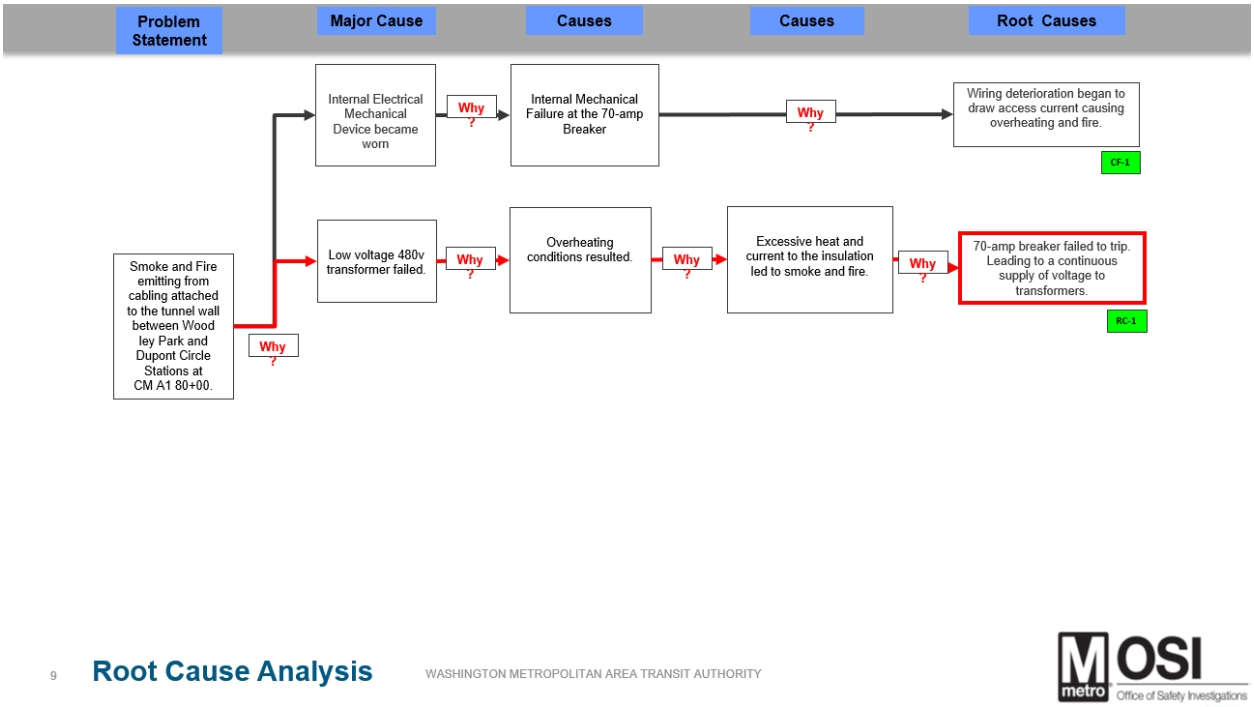

Figure 7 - Root Cause Analysis, Page 2 of 3

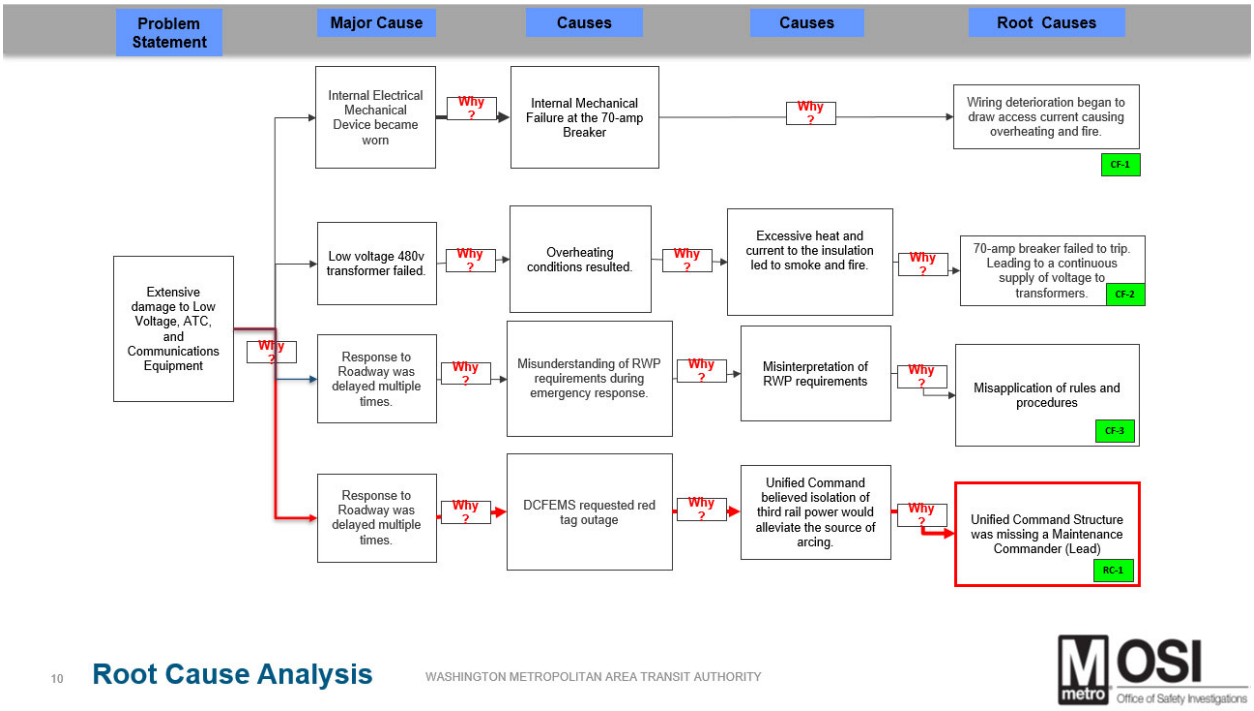

Figure 8 - Root Cause Analysis, Page 3 of 3