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WMSC Commissioner Brief: W-0058 – Improper RWP near Silver Spring Station – August 29, 2020

Prepared for Washington Metrorail Safety Commission meeting on January 26, 2021

Safety event summary:

A Metrorail Traction Power Maintenance (TRPM) technician executing a red tag outage around 12:01 a.m. on August 29, 2020 entered the roadway from Silver Spring Tie Breaker Station 2 without proper Roadway Worker Protection to hot stick and confirm that third rail power had been deenergized.

The TRPM crew had racked out the associated breaker, but Foul Time was not requested to enter the roadway. Instead, the technician had spoken to the Maintenance Operations Center on the phone (landline) who allowed the technician to go wayside.

The technician said in an interview that they assumed they had Foul Time since that is the regular nightly procedure. The RWIC stated that the regular nightly procedure was to get permission from MOC to enter the roadway to hot stick and confirm that the third rail is de-energized, then get Foul Time from the ROCC, then enter the roadway.

The technician notified the Maintenance Operations Center of the areas that had been hot sticked, but there was no communication with the Rail Operations Control Center controller.

Although the technician was on the roadway, the RWIC for this crew remained in the Tie Breaker Station briefing contractors on that night's scheduled power cable replacement work.

The technician's radio remained on Channel MOC Ops 1, while the RWIC's radio was on Channel ROCC Ops 1.

When the ROCC controller called MOC to inform them that hot sticking had not been completed, MOC provided the chain markers and the ROCC controller stated that Foul Time had to be requested to hot stick again.

The TRPM technician spoke with MOC and was later removed from service.

WMATA notified the WMSC of this event outside of the required two-hour notification window.

Probable Cause:

An environment where written safety procedures are not followed for steps such as accessing the roadway allowed this event to occur.

Corrective Actions:

TRPM developed a Lessons Learned document focused on accessing the roadway and requesting Foul Time.

The TRPM technician was assigned to RWP refresher training.

WMSC staff observations:

This event demonstrates shortfalls in communication within work crews as well as between the crew and the ROCC/MOC that WMATA should analyze for opportunities for improvement.

Staff recommendation: Adopt final report.

Washington Metro Area Transit Authority

Department of Safety and Environmental

Management (SAFE)

FINAL REPORT OF INVESTIGATION A&I E20319

Date of Event:	8/29/2020
Type of Event:	Improper Roadway Worker Protection (RWP)
Incident Time:	00:01 hrs.
Location:	Silver Spring Station, Tracks 1 and 2
Time and How received by SAFE:	00:50 hrs., On-Call Phone
WMSC (Washington Metrorail Safety Commission) Notification Time:	02:03 hrs.
Rail Vehicle:	N/A
Injuries:	None
Damage:	None
SMS I/A Incident Number:	20200829#88665

Silver Spring Station – Improper RWP
August 29, 2020

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Abbreviations and Acronyms

ARS	Audio Recording System
CM	Chain Marker
FT	Foul Time
MOC	Maintenance Operations Center
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic Atmospheric Administration
RJSB	Roadway Job Safety Briefing
ROCC	Rail Operations Control Center
RTRA	Office of Rail Transportation
RWIC	Roadway Worker In Charge
RWP	Roadway Worker Protection
SAFE	Department of Safety and Environmental Management
TBS	Tie Breaker Station
TRPM	Traction Power Maintenance
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

On Saturday, August 29, 2020, at 00:01 hrs., a Traction Power Maintenance (TRPM) Technician executing the Red Tag at the Silver Spring Station Tie Breaker Station (TBS) 2 failed to request Foul Time (FT) Protection to access the roadway.

After TRPM technicians racked out the associated breaker with a Red Tag, TRPM Technician accessed the roadway to hot stick the area to confirm third rail power was de-energized. Upon completion, the TRPM Technician notified Maintenance Operations Center (MOC) of the locations that were hot sticked. Subsequently, the Rail Operations Control Center (ROCC) called MOC to inform them the Red Tag had not been hot sticked. At that time, MOC told ROCC that the area had been hot sticked, and they had received the Chain Marker (CM) locations from the TRPM Technician. ROCC then replied FT was not requested and that the TRPM Technician needed to request FT to hot stick again. The TRPM Technician was informed to call MOC via landline and later was removed from service for improper Roadway Worker Protection (RWP) and then transported for post-incident toxicology testing. There were no injuries or damages reported as a result of this incident.

The probable cause of the incident was TRPM Technician's failure to adhere to established WMATA rules and procedures detailed within the Metrorail Safety Rules and Procedures Handbook (MSRPH). They did not request ROCC's permission before entering the roadway or verified with the Roadway Worker In Charge (RWIC) if FT has been established for their protection.

Upon analysis of data collected from the record systems and the results of interviews with staff, several procedure violations occurred in this incident. Upon report of entering the roadway, TRPM Technician was not in compliance with the following MSRPH rules and procedures:

(1) MSRPH 4.168 - "*Employees shall not enter upon the roadway or cross the tracks except when it is absolutely necessary in the performance of their duties and permission has been granted by ROCC."* As a qualified Level 4 Roadway Worker, the TRPM Technician did not contact ROCC to establish FT before entering the roadway to verify if third rail power had been de-energized. Furthermore, the employee did not get the Roadway Worker In-Charge to verify if FT had been established.

SAFE identified several communication breakdowns and failed adherence to written procedures and processes within the MSRPH were identifias contributing factors in this event.

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

SAFE recommends that the TRPM Technician receive RWP refresher training with an emphasis on radio communications and that TRPM develop a Lessons Learned focusing on accessing the roadway and requesting FT.

Incident Site

Near Silver Spring Station, Tracks 1 and 2, CM 488+00

Field Sketch/Diagram

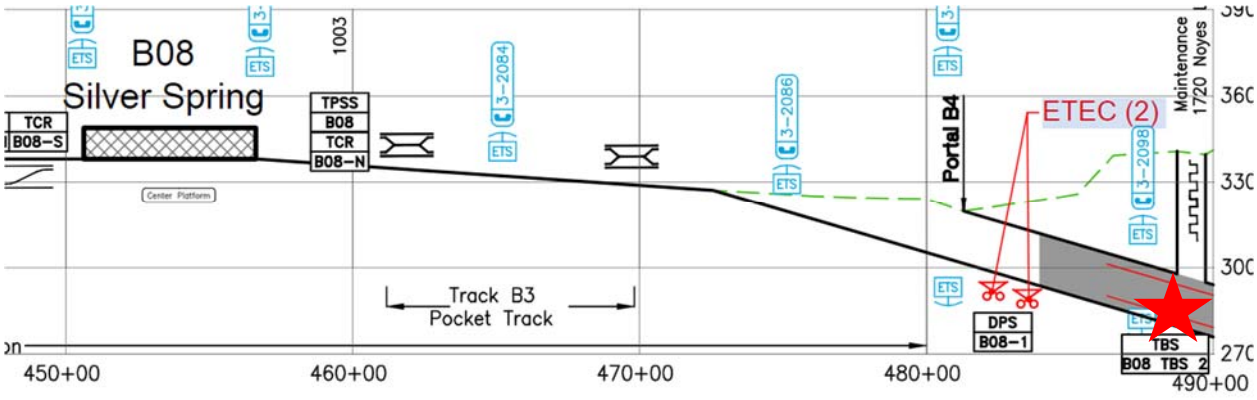

Figure 1: Incident site, near Silver Spring Station, Tracks 1 and 2, CM 488+00

Purpose and Scope

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

Investigative Methods

The investigative methodologies included the following:

- Physical Site Assessment

- Formal Interviews – SAFE interviewed two individuals as part of this investigation. Interviews included persons present at, during, and after the incident, those directly involved in the response process, and Managers responsible for the process. SAFE interviewed the following individuals:
  - TRPM Technician
  - RWIC

- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Employee Training Procedures & Records
  - Certifications
  - The 30-Day work history review
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic Atmospheric Administration (NOAA)
  - ROCC Procedures Manual Review

- System Data Recording Review - A collection of information contained in Metro Data Recording Systems. This data includes:
    - Audio Recording System (ARS) playback including Radio and Phone Communications
    - Advanced Information Management System (AIMS)

Investigation

Based on investigative findings, the RWP safety violation began when the employee entered the roadway without requesting or receiving permission from the Rail Operations Control Center. According to the interviews with the TRPM Technician and the RWIC, the work assignment was located near Silver Spring Station on Tracks 1 and 2 from CM 463+96 to 527+82. After the Roadway Job Safety Briefing (RJSB) was conducted, the TRPM Technician exited TBS 2 and accessed the roadway at CM 488+00 to conduct hot stick operations to verify the de-energized third rail. The TRPM Technician informed MOC of the locations where they performed hot stick operations. During this time, the RWIC was located inside TBS 2, briefing contractors that were part of their work crew for the work assignment. The RWIC was not aware that the TRPM Technician was going to access the roadway and did not request FT for them. The RWIC later received a call from MOC stating the TRPM Technician performed hot stick operations without requesting FT and needs to be removed from service.

Further ARS playback review verified that ROCC had contacted MOC to inform them that Red Tag had been confirmed and needed to be hot sticked to verify de-energized third rail. MOC responded and stated the TRPM Technician had hot sticked already and called in CM locations. ROCC said they did not receive a request for FT to conduct hot stick operations, and the TRPM technician had entered the roadway without permission. The TRPM Technician was not in compliance with several safety rules, including not performing a radio check, and not requesting FT before entering the roadway.

Chronological Event Timeline

Based on ARS playback revealed:

Time	Description
23:39:35 hrs.	The MOC received Red Tag Information for Silver Spring and Forest Glen Stations, Track 1, and 2.
23:40:32 hrs.	The MOC confirmed Red Tag Information for Silver Spring and Forest Glen Stations, Track 1, and 2.
00:07:53 hrs.	The MOC received a call from ROCC stating the hot stick process has not been completed. MOC responds, saying they received a call with chain markers. ROCC stated FT was not requested and needed to hot stick again. MOC asks TRPM Technician to call via a landline. [Phone]

Interview Findings

Based on the investigation launched into the Silver Spring Station improper RWP incident, SAFE conducted two interviews, which included the investigation team and relevant Metro management. These interviews identified the following key findings associated with this event, as follows:

The TRPM Technician did not contact RWIC via radio before performing hot stick operations to verify third rail power was down. The TRPM Technician did not utilize the correct radio channel to hear the RWIC as they were on Channel MOC Ops 1 and the RWIC used Channel ROCC Ops 1. The TRPM Technician assumed FT Protection had been granted even though they did not ascertain this through the RWIC. This action demonstrated the TRPM Technician did not follow procedures, which contributed to the TRPM Technician accessing the roadway while not under FT Protection. Furthermore, the TRPM Technician stated they were certified to the RWP-4 Level and should have known to verify FT Protection had been established before they accessed the roadway.

Findings

- The TRPM Technician entered the roadway without permission. This action is not in compliance with MSRPH 4.168 - *"Employees shall not enter upon the roadway or cross the tracks except when it is absolutely necessary in the performance of their duties and permission has been granted by ROCC."*

- The TRPM employee did not receive verbal instructions from the RWIC.

Weather

At the time of the incident, the temperature was 73° F with low clouds and 94% humidity. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: NOAA – Location: Silver Spring, MD.)

Human Factors

Fatigue

Based on SAFE's interview question related to Fatigue Factors and review of the TRPM Technician's 30-day work history, the TRPM Technician's 30-day work schedule leading up to the incident was compliant with WMATA's Policy/Instruction 10.7/1 Hours of Service Limitations for Prevention of Fatigue. It did not present a significant risk of impairment due to fatigue. Based on employee interviews, no personal factors suggest that it would have increased the likelihood of fatigue-related impairment. The employees had no history of sleep issues to report.

Post-Incident Toxicology Testing

After reviewing the TRPM Employee's post-incident testing results, it was determined that the TRPM Technician involved was not in violation of the Drug and Alcohol Policy and Testing Program 7.7. 3/5, therefore, being under the influence of a controlled substance has been excluded as a contributing factor.

Probable Cause Statement

The probable cause of the incident was the TRPM Technician's failure to adhere to established WMATA rules and procedures detailed within the MSRPH. They did not request ROCC permission before entering the roadway or verify with the RWIC if FT was established for their protection.

SAFE Recommendations

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

Corrective Action Code	Description
88665_SAFECAPS_ TRPM_001	The TRPM Technician should receive RWP refresher training and that TRPM develop a Lessons Learned focusing on accessing the roadway and requesting FT.

Appendix A - Interviews

Interview Details

TRPM Technician

WMATA employee with six years of service as a “B” Mechanic.

The TRPM Technician stated the job this evening was installing new power cables at Silver Spring Station under a red tag power outage based on the interview. They indicated that they were racking out the breakers in TBS 2 at Silver Spring Station and working under the supervision of the RWIC, who was on the radio with ROCC Ops 1. The TRPM Technician reported miscommunication with the RWIC, as their radio was on MOC Ops 1. They stated that as they were using the TBS landline, they were permitted to go wayside by MOC. They further said they never heard their RWIC call for "foul time" but had assumed they had "foul time" as their nightly operational procedure. When the TRPM Technician exited the TBS between Tracks 1 and 2, they radioed ROCC for permission to hot stick and confirm power was de-energized and was subsequently told to stand by and stand clear and give central a landline. The TRPM Technician was later removed from service and taken for an alcohol and drug test before being interviewed by SAFE.

RWIC

WMATA employee with four years of service as a “C” Mechanic.

Based on the SAFE interview, the RWIC stated they performed the Roadway Job Safety Briefing (RJSB) before work commenced on August 28, 2020. At the time of the incident, the RWIC informed contractors of their work assignment on the second floor of TBS 2. After the RWIC performed the RJSB, the RWIC stated prep work was being conducted until third rail power was confirmed to be de-energized. They continued to say their routine procedures consisted of MOC permitting hot stick processes, FT is then requested from ROCC, and hot stick operations are performed before work is conducted. The RWIC added that they usually perform hot stick duties when the crew consists of less than five employees. During the event, the RWIC was in TBS 2 and received a notification to call MOC via landline over the radio. They reported not being aware that TRPM Technician went to hot stick until MOC notified them. The RWIC stated a communication issue as the TRPM technician was on MOC Ops 1 channel, and they were on ROCC Ops 1 channel.