



WMSC Commissioner Brief: W-0074 – Improper RWP – Red Line near Rockville Station – November 26, 2020

Prepared for Washington Metrorail Safety Commission meeting on April 13, 2021

Safety event summary:

A Traction Power Maintenance (TRPM) crew traversed a Roadway Worker Protection (RWP) “hot spot” without requesting or being granted the required foul time protection. Foul time is a form of protection that involves the Rail Operations Control Center (ROCC) stopping train traffic so that personnel can safely access the roadway.

In an interview, the TRPM Roadway Worker in Charge (RWIC) stated that they did not know that foul time was required for restricted view areas marked in the RWP manual and quick access guide as red “hot spots” requiring foul time protection. The remainder of the crew did not identify this safety issue.

The investigation also found that the RWIC had an outdated version of the quick access guide, that the two “hot spots” within the work area were not addressed as required in the roadway job safety briefing, and that supervisors did not check job safety briefings for completeness.

Probable Cause:

The probable cause of this event is Metrorail's inadequate training on RWP procedures, incomplete communication to ensure that all personnel rely only on current documents, and lack of supervisory oversight of critical safety requirements.

Corrective Actions:

Metrorail will provide RWP refresher training to this TRPM crew.

Metrorail stated that TRPM supervisors will check job safety briefing forms and that a safety stand-down was conducted in the days following this event with TRPM personnel based at Shady Grove Yard.

WMSC staff observations:

Metrorail should consider more systemically addressing issues like this by, for example, not limiting a safety stand down related to potentially system-wide issues to a single yard.

Staff recommendation: Adopt final report.



**Washington Metro Area Transit Authority
Department of Safety and Environmental
Management (SAFE)**

FINAL REPORT OF INVESTIGATION A&I E20467

Date of Event:	11/26/2020
Type of Event:	Improper Roadway Worker Protection
Incident Time:	08:22 hrs.
Location:	Rockville Station
Time and How received by SAFE:	08:35 hrs. – SAFE On-Call Phone
WMSC Notification Time:	09:13 hrs.
Rail Vehicle:	N/A
Injuries:	None
Damage:	None
SMS I/A Incident Number:	20201126#90435

Rockville Station – Improper Roadway Worker Protection

November 26, 2020

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Abbreviations and Acronyms

ARS	Audio Recording System
CAP	Corrective Action Plan
CM	Chain Marker
FT	Foul Time
I/A	Incidents/Accidents
MOC	Maintenance Operations Control
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
RJSB	Roadway Job Safety Briefing
ROCC	Rail Operations Control Center
RTC	Rail Traffic Controller
RWIC	Roadway Worker In Charge
RWP	Roadway Worker Protection
SAFE	Department of Safety and Environmental Management
SMS	Safety Measurement System
TRPM	Traction Power Maintenance
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

On Thursday, November 26, 2020, at 08:22 hrs., a Traction Power Maintenance (TRPM) Mechanic performing duties as a Roadway Worker In Charge (RWIC) did not request Foul Time (FT) while accessing a Red-Hot Spot area between Rockville and Twinbrook Stations, Track #1, Chain Marker (CM) A1 788+00 to CM A1 795+00. The Rail Operations Control Center (ROCC) informed SAFE of the incident at 08:35 hrs. and the ROCC removed the TRPM personnel for post-incident testing.

After the TRPM RWIC and other TRPM personnel assigned to the work crew accessed the roadway near CM A1 788+00, the RWIC requested permission to cross over to Track #2. The Radio Rail Traffic Controller (RTC) informed the RWIC they did not request FT before entering the Red-Hot Spot at their current location. The Radio RTC notified TRPM personnel they would be picked up by a Train Operator and removed from service for an Improper Roadway Worker Protection (RWP). There were no injuries or damages reported as a result of this incident.

The probable cause of this event is Metrorail's inadequate training on RWP procedures, incomplete communication to ensure that all personnel rely only on current documents, and lack of supervisory oversight of critical safety requirements.

Upon analysis of data collected from the systems of record and interviews with staff, SAFE identified the TRPM RWIC was not in compliance with the following MSRP rules and procedures:

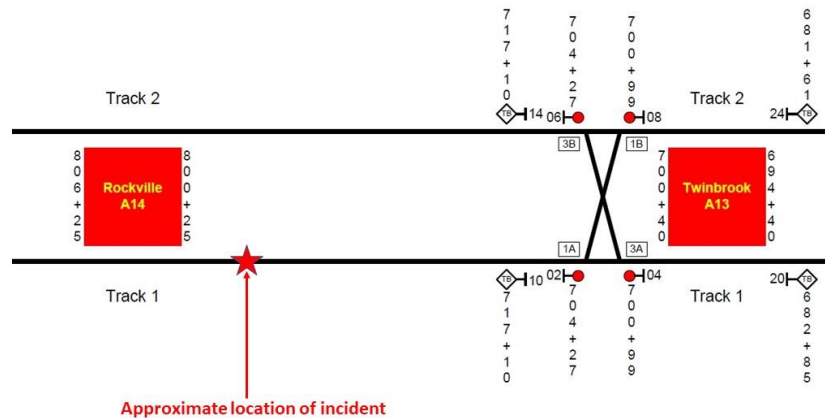
(1) MSRP 5.13.5 – FT Protection, *“A method of RWP in which a qualified Level 2 or Level 4 Roadway Worker requests that ROCC Stop all rail vehicle movement in a specific area for a limited time. FT is used to safely clear a Red-Hot Spot area or when additional RWP is required.”*

Note: A safety stand-down was conducted after the incident on November 26, 2020, with personnel involved and on December 1, 2020, with all TRPM personnel at Shady Grove Department.

Incident Site

Between Rockville and Twinbrook Stations, Track #1, CM 788+00 – 795+00

Field Sketch/Diagram



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 during and/or after the incident and those directly involved in the response process.. The following individuals were interviewed:
 - TRPM RWIC
 - TRPM Supervisor
- Documentation Review – Collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
 - Employee Training Procedures & Records
 - Certifications
 - 30-Day work history review
 - Metrorail Safety Rules and Procedures Handbook (MSRPH)
 - Roadway Worker Protection (RWP) Quick Access Guide 2018
 - National Oceanic Atmospheric Administration (NOAA)
- System Data Recording Review - Collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback [Radio and Landline Communications]

Investigation

Based on findings, the TRPM Mechanic was assigned as the RWIC and performed both RWIC and Watchman/Lookout duties during third rail heat tape inspections from Twinbrook Station to Rockville Station. The TRPM RWIC and TRPM work crew began at the end of Twinbrook Station, Track #1, CM A1 700+40, and performed heat tape inspections up to CM A1 716+00. At this location, the TRPM RWIC contacted ROCC to request permission to cross over to Track #2. ROCC asked the TRPM RWIC to confirm their current location. At this time, ROCC informed TRPM RWIC they had an improper RWP by not requesting FT through a Red-Hot Spot. The ROCC removed the TRPM personnel from service and post-incident testing.

Based on a review of the RWP Quick Access Guide, the TRPM personnel traversed a Restricted View Red-Hot Spot from CM 705+00 to 711+00.

ARS playback review determined the ROCC contacted Maintenance Operations Control (MOC) to report TRPM RWIC did not request FT while traveling through a Hot Spot. The TRPM RWIC confirmed the location of CM A1 716+00, from which they asked for permission to crossover to Track #2. ROCC contacted MOC to report the RWP Violation. The TRPM RWIC was subsequently picked up by a train operator and removed from service for not requesting FT while traversing a Red-Hot Spot.

Chronological Event Timeline

A review of ARS radio playback revealed:

Time	Description
08:13:13 hrs.	ROCC made announcements to the Train Operators of personnel walking between Twinbrook Station and Rockville Station, Track #1. Advises upon seeing personnel to dim lights, sound horn, and proceed no more than 15 mph.
08:16:21 hrs.	TRPM RWIC contacted ROCC and requested clearance to crossover to Track #2 from CM A1 716+00 to continue Watchman/Lookout duties.
08:16:53 hrs.	ROCC asked TRPM RWIC to repeat the current CM location.
08:17:01 hrs.	TRPM RWIC confirmed their current CM location at A1 716+00.
08:18:43 hrs.	ROCC informed MOC that TRPM personnel had an Improper RWP by not requesting FT through a Red-Hot Spot while performing third rail heat tape inspections. The incident occurred from Twinbrook to Rockville Station, and they were being removed from service. A train operator is en route to pick up the TRPM personnel.

Interview Findings

Based on the investigation launched into the Rockville Station Improper RWP incident, SAFE conducted two interviews via Microsoft Teams, which included the SAFE Investigation Team, relevant Metro Management and representatives from the Washington Metrorail Safety Commission (WMSC). These interviews identified the following key findings associated with this event, as follows:

The TRPM RWIC performed heat tape inspections between Twinbrook and Rockville Stations while not requesting FT from ROCC as required. TRPM RWIC stated they were unaware they were required to request FT for "Restricted View" areas on the roadway. Further discussion

revealed the TRPM RWIC utilized the incorrect version of the Roadway Quick Access Guide and did not address any Red-Hot Spots or FT protection on the RJSB.

The TRPM Supervisor reported RJSBs were not verified by Supervisors prior to this incident occurring. As a result of the incident, TRPM Management has required Supervisors to check the RJSBs of RWICs to ensure pertinent safety information is not overlooked. The TRPM RWIC was qualified as RWP-4 at the time of the incident and completed refresher training in March 2020. This is a management issue that was identified during the interview in which the TRPM Supervisor reported TRPM Management has corrected their procedures to ensure all RJSBs are verified.

Findings

- The TRPM RWIC traversed a Hot Spot on the roadway without permission.
- The TRPM RWIC did not adhere to the MSRPH for requesting FT to clear a Red-Hot Spot. This action is not in compliance with MSRPH 5.13.5 – FT Protection, “*A method of RWP in which a qualified Level 2 or Level 4 Roadway Worker requests that ROCC Stop all rail vehicle movement in a specific area for a limited time. FT is used to safely clear a Red-Hot Spot area or when additional RWP is required.*”
- FT Protection and Red-Hot Spots were not covered or marked as a hazard on the Roadway Job Safety Briefing (RJSB) signed by the RWIC. The Working Limits listed on RJSB contained two Red-Hot Spots with Restricted Views that were not identified.

Weather

At the time of the incident, NOAA recorded the temperature at 61° F with broken clouds and 90% humidity. Winds NNE at 12 mph and visibility of 10 miles. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: NOAA – Location: Rockville, MD.)

Human Factors

Fatigue

Based on SAFE’s interview question related to Fatigue Factors and review of the 30-day work history for TRPM RWIC, SAFE determined the 30-day work schedule for TRPM RWIC leading up to the incident were compliant with WMATA’s Policy/Instruction 10.7/1 Hours of Service Limitations for Prevention of Fatigue. Based on employee interviews, there were no personal factors present that would have increased the likelihood of fatigue-related impairment. The employee had no history of sleep issues to report.

Post-Incident Toxicology Testing

After reviewing post-incident testing results for TRPM RWIC, SAFE determined the TRPM RWIC was not in violation of the Drug and Alcohol Policy and Testing Program 7.7. 3/5

Probable Cause Statement

The probable cause of this event is Metrorail's inadequate training on RWP procedures, incomplete communication to ensure that all personnel rely only on current documents, and lack of supervisory oversight of critical safety requirements.

SAFE Recommendations/Corrective Actions

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
90435_SAFECAPS_TRPM_001	To schedule involved TRPM personnel to RWP Refresher Training and ensure satisfactory completion.
90435_SAFECAPS_TRPM_002	TRPM Management to ensure Roadway Job Safety Briefings conducted by TRPM personnel performing RWIC duties are reviewed by TRPM Supervisors for accuracy.

Appendix A – Interview Summaries

TRPM RWIC

The TRPM RWIC is a WMATA employee with ten years of experience as a Mechanic Helper and “B” Mechanic. The TRPM RWIC was certified for RWP in March 2020 and has no history of sleep issues to report.

Based on the interview, the TRPM RWIC stated the following:

The job assignment was to perform Heat Tape Inspections between Twinbrook Station and Shady Grove Station. The TRPM Mechanic was assigned to conduct RWIC and Watchman/lookout duties by their Supervisor. After they conducted the RJSB, the crew began the inspections. While on the roadway, the TRPM RWIC contacted ROCC to request permission to cross over to Track #2. ROCC then asked them about their location. They stated their location, which was passed a Red-Hot Spot. ROCC notified them of their failure to request FT and that they were being removed from service. TRPM RWIC stated they were not aware of the need to request FT for “Restricted View” areas on the roadway identified in RWP Quick Access Guide. The TRPM RWIC was subsequently removed from service and transported for post-incident toxicology testing. At the time of the incident, the TRPM RWIC held an RWP-4 level certification.

TRPM Supervisor

The TRPM Supervisor is a WMATA employee with 23 total years of experience; four years as a High-Voltage Power Supervisor, and 19 years as a “AA” Mechanic.

Based on the interview, the TRPM Supervisor stated the following:

At the time of the incident, TRPM personnel were conducting heat tape inspections on the third rail. They stated a safety meeting was conducted before work started and a job safety briefing was performed by the assigned RWIC. The TRPM Supervisor noted the RWIC used an outdated version of the Roadway Quick Access Guide when conducting the RJSB and they did not identify the Red-Hot Spots within the work limits. The TRPM Supervisor reported this discrepancy was discovered after the incident occurred. As a result of this incident, the TRPM Supervisor stated all RJSB are verified by a Supervisor to ensure RWICs are covering all safety hazards during a job assignment. During the work assignment, the TRPM Supervisor stated there were no distractions; however, the RJSB was not verified and the Red-Hot Spots were not identified as required.

Appendix B – Roadway Job Safety Briefing

WMATA ROADWAY JOB SAFETY BRIEFING FORM

DATE: 11/26/20 TRACK TIME ON/OFF: 07:50, 08:22

RWIC NAME: [REDACTED] CALL#: [REDACTED] EMPLOYEE #: [REDACTED]

RWIC's CELL PHONE NUMBER: [REDACTED] RADIO OPS CHANNEL: 1

SAFETY RULE OF THE DAY: Personnel shall keep track and be vigilant of rail vehicle movement in

WORK ASSIGNMENT: Heat Tape Inspection DIRECTION OF TRAFFIC: INBOUND ☒ OUTBOUND ☒

RAIL LINE A B C D E F G J K L N TRACK 1 2 3 WORK LIMITS CHAIN MARKER(s): 700+00 - 800+25
940+00 - 806+25

PLACE OF SAFETY: Safety Walk

TYPE OF PROTECTION(s): IT ☐ ETO AUTHORITY ☐ ETO LOCAL SIGNAL ☐ AMF ☒ FT ☐

REQUEST FROM ROCC: BLOCK CALLS ☐ CANCEL AUTOMATIC SIGNALS ☐ PROHIBIT EXITS ☐

RED HOT SPOT(s) TYPE/LOCATION(s): ☐ RED HOT SPOT HAZARDS ☐ ETS/RADIO OUTAGE ☐

FOUL TIME PROTECTION CAN BE REQUESTED IN ALL WORK ZONE CONFIGURATIONS

POWER OUTAGE: LOCK OUT TAG OUT ☐ RED TAG ☐ SUPERVISORY ☐ NO POWER OUTAGE ☐

RED TAG NUMBER: ☐ RED TAG HOLDER: ☐

WATCHMAN/LOOKOUT ASSIGNED: Yes ☐ No ☐ WATCHMAN/LOOKOUT NAMES(s): ☐

WATCHMAN/LOOKOUT EQUIPPED WITH AIR HORN AND WHISTLE ("W" Warning Disc required for fixed work zones): ☐

WATCHMAN/LOOKOUT MUST BE PROPERLY SPACED AND HAVE SUFFICIENT SIGHTING DISTANCE TO PROVIDE AMPLE WARNING

ADVANCE MOBILE FLAGGER ASSIGNED: Yes ☐ No ☐ ADVANCE MOBILE FLAGGER CALL #(s): ☐

ADVANCE MOBILE FLAGGER EQUIPPED WITH AMBER LANTERNS/E-FLARES, ORANGE FLAG, AIR HORN, WHISTLE AND RADIO: ☐

PIGGY BACK CREW LEADER CALL #(s): ☐ PIGGY BACK WORKZONE CM(s): ☐

PIGGY BACK WORK ASSIGNMENT: ☐

NUMBER OF RMM(s): ☐ RMM OPERATIONS IN WORK ZONE: ☐

ALL ROADWAY WORKERS MUST EXERCISE GOOD JUDGEMENT AND CONSIDER THE FOLLOWING POTENTIAL HAZARDS AND PROCEDURES BEFORE ENTERING THE ROADWAY:

WEATHER CONDITIONS	<input checked="" type="checkbox"/>	TRIPPING HAZARDS / UNEVEN WALKING SURFACES	<input checked="" type="checkbox"/>
TRACK GRADE AND VISIBILITY	<input checked="" type="checkbox"/>	POOR LIGHTING / TUNNEL AND VENT SHAFT(S)	<input checked="" type="checkbox"/>
HAZARDS ASSOCIATED WITH RAIL VEHICLE MOVEMENT	<input checked="" type="checkbox"/>	TRAIN / CURVE SPEED(S)	<input checked="" type="checkbox"/>
WORK SITE CONDITIONS AND ACTIVITIES	<input checked="" type="checkbox"/>	ETS BOX(S) LOCATIONS	<input checked="" type="checkbox"/>
EMERGENCY PROCEDURES	<input checked="" type="checkbox"/>	EQUIPMENT AND TOOL SAFETY	<input checked="" type="checkbox"/>
ADJACENT TRACK PROTECTION	<input checked="" type="checkbox"/>	ROTATION AND RELIEF PROCEDURES	<input checked="" type="checkbox"/>

Rv. 3 WMATA Roadway Job Safety Briefing Form, Date: November 2018

Incident Date: 11/26/2020 Time: 08:22 hrs.
Final Report Rev.1 – Improper RWP
E20467

Rev.1 Drafted By: SAFE 702 – 03/31/2021
Rev.1 Reviewed By: SAFE 701 – 03/31/2021
Rev.1 Approved By: SAFE 2 – 03/31/2021

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Appendix C – Safety Stand Down Roster

RWP SAFETY STAND-DOWN A99 SOP 5 5-38 Foul time

Presenter: [REDACTED]

Presenter Signature: [REDACTED]

Presenter ID: [REDACTED]

Department TRPM A99 Shady Grove

Training Location A99 Date 12/1/20

Start Time 0615 End Time 0700

NAME

EMPLOYEE #

1. [REDACTED]

[REDACTED]

2. [REDACTED]

[REDACTED]

3. [REDACTED]

[REDACTED]

4. [REDACTED]

[REDACTED]

5. [REDACTED]

[REDACTED]

6. [REDACTED]

[REDACTED]

7. [REDACTED]

[REDACTED]

8. [REDACTED]

[REDACTED]

9. [REDACTED]

[REDACTED]

10. [REDACTED]

[REDACTED]

Safety stand down was conducted on 11/26/20 after the initial violation with personnel involved. The above name personnel at A99 took part in the safety stand down in reference to the RWP violation on 11/26/2020 at A13 Twin brook Station. Lesson learned was discussed with personnel and refresher on Foul time on the roadway and AMF procedures was discussed also. We wanted to refresh all personnel on of red markings in the track access guide and the meaning of them