



WMSC Commissioner Brief: W-0153 – Improper Movement – near Twinbrook Station – November 4, 2021

Prepared for Washington Metrorail Safety Commission meeting on March 8, 2022

Safety event summary:

The Train Operator of out-of-service Train ID 820 (from Shady Grove Yard toward Brentwood Yard) moved near Twinbrook Station without permission or a required permissive block from the Rail Operations Control Center (ROCC) Rail Traffic Controller on November 4, 2021. This permission was required by Metrorail rules because trucks were cut out on the train, meaning that braking functions were removed from those wheelsets.

Prior to the event, the Train Operator received permission from the Roadway Worker in Charge (RWIC) at the Shady Grove-Rockville Shutdown Area to cross through that work location. After arriving at Rockville Station, the ROCC Controller gave the Train Operator a permissive block to no closer than 10 feet of the red (stop indication) signal A13-06 on Track 2, outside Twinbrook Station. The Train Operator acknowledged and repeated back the instructions. A permissive block is defined as a section of clear track ahead of a train in the established direction of traffic up to a specific point (limit) into which no other train, vehicle, or track obstruction is permitted (MSRPH SOP 15.3.4). This serves as a mitigation against collision.

The Train Operator stopped as instructed at signal A13-06. However, when the signal changed from red to lunar (proceed indication), the Train Operator then moved forward without permission from the Controller. The Train Operator reported being in motion as the train crossed over from Track 2 to Track 1. The Controller directed the Train Operator to stop at Twinbrook Station, where an Office of Rail Transportation (RTRA) Terminal Supervisor removed them from service for post-event toxicology testing. Another Train Operator took over operation of the train.

Probable Cause:

The probable cause of this event is Metrorail's insufficient safety promotion to ensure that personnel such as train operators fully understand and properly implement safety rules such as the requirement to only move with a permissive block when their train has trucks cut out.

Corrective Actions:

Metrorail ensured the Train Operator received refresher training regarding radio communication and train operations when blocks are cut out.

WMSC staff observations:

The WMSC transmitted a draft Rail Operations Audit to Metrorail last month for technical review that includes a review of training and supervision. The WMSC expects to issue a final report in the coming weeks.

Staff recommendation: Adopt final report.



Washington Metro Area Transit Authority
Department of Safety and Environmental
Management (SAFE)
FINAL REPORT OF INVESTIGATION A&I E21552

| | |
|---------------------------------------|--|
| Date of Event: | 11/4/2021 |
| Type of Event: | Improper Rail Vehicle Movement |
| Incident Time: | 11:12 hours |
| Location: | Twinbrook Station, Track 2, Signal A13-06 |
| Time and How received by SAFE: | 11:20 hours – SAFE/IMO In-Person Notification |
| WMSC Notification Time: | 11:35 hours |
| Responding Safety Officers: | WMATA: No WMSC: No Other: No |
| Rail Vehicle: | Train ID# 820 L2032.2033-2041.2040-2046.2047-2000.2001T |
| Injuries: | No |
| Damage: | No |
| SMS I/A Incident Number: | 20210818#95097MX |

Twinbrook Station – Improper Train Movement

November 4, 2021

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Abbreviations and Acronyms

| | |
|--------------|---|
| AIMS | Advanced Information Management System |
| ARS | Audio Recording System |
| CAP | Corrective Action Plan |
| CMNT | Office of Car Maintenance |
| COMR | Office of Systems Maintenance, Office of Radio Communications |
| I/A | Incidents/Accidents |
| IMO | Incident Management Official |
| MSRPH | Metrorail Safety Rules and Procedures Handbook |
| NOAA | National Oceanic and Atmospheric Administration |
| ROCC | Rail Operations Control Center |
| RTRA | Office of Rail Transportation |
| RWIC | Roadway Worker In Charge |
| SAFE | Department of Safety and Environmental Management |
| SMS | Safety Measurement System |
| SRC | Safety Risk Coordinator |
| WMATA | Washington Metropolitan Area Transit Authority |
| WMSC | Washington Metrorail Safety Commission |

Executive Summary

On Thursday, November 4, 2021, at approximately 11:12 hours, a West Falls Church Division Train Operator, operating non-revenue service inbound Red Line Train ID #820 [L2032.2033-2041.2040-2046.2047-2000.2001T] from Shady Grove Yard to Brentwood Yard, was removed from service for moving their consist without a permissive block with the trucks cut out on Car #2046. Prior to the event, the operator traversed the area of the Shady Grove-Rockville shutdown with permission of the Roadway-Worker-In-Charge (RWIC). After arriving at Rockville Station, the Rail Operation Control Center (ROCC) provided a block to the Train Operator to Signal A13-06, outside of Twinbrook Station. After arriving at Signal A13-06, the Train Operator moved the train consist past Signal A13-06 upon seeing the signal change to lunar with correct rail alignment. The Train Operator did not receive ROCC's permission prior to moving their consist. The Train Operator was contacted by ROCC and directed to stop at Twinbrook Station, Track 1. ROCC instructed an Office of Rail Transportation (RTRA) Terminal Supervisor to remove the Train Operator of Train ID 820 from service. The RTRA Terminal Supervisor directed another Train Operator to take control of the consist to Brentwood Yard as planned. No injuries or damage were reported as a result of this incident.

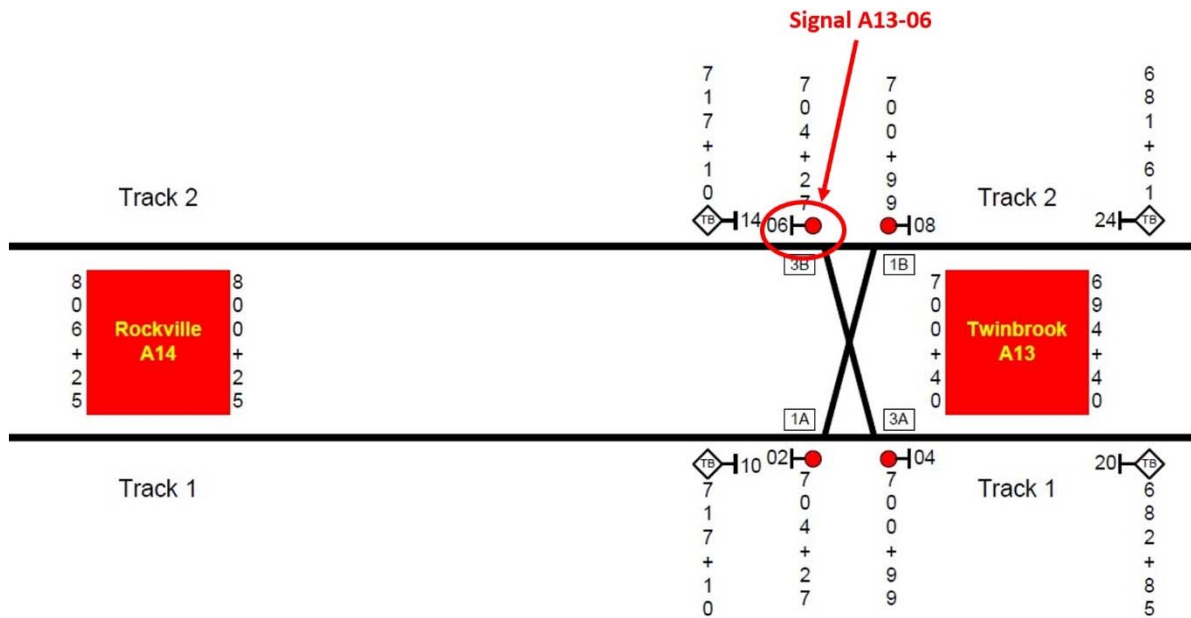
Based on the Advanced Information Management System (AIMS) display, at approximately 11:11 hours, the Train Operator of Train ID 820 approached Signal A13-06, Track 2, displaying a red aspect. At approximately 11:12 hours, Signal A13-06 changed to lunar, and the Train Operator of Train ID 820 moved their consist past Signal A13-06, while transmitting that they were in motion. The consist proceeded to cross over at the interlocking onto Track 1 in the direction of Twinbrook Station. At approximately 11:12:50 hours, Train ID 820 approached Twinbrook Station platform on Track 1. See AIMS Diagrams 1 through 8.

The probable cause of the incident was a failure to follow established procedures as the Train Operator failed to request or receive an updated block and perform a 100% repeat back of instructions given from the ROCC prior to moving their consist. No mechanical or procedural deficiencies were identified during the investigation.

Incident Site

Twinbrook Station, Track 2, Signal A13-06

Field Sketch/Schematics



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:

- Site assessment via records review
- Formal Interviews – SAFE conducted one interview as part of this investigation. Representatives from the Washington Metrorail Safety Commission (WMSC) were present during the interview. SAFE interviewed the following individual:
 - Train Operator
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information.
- Documentation Review – A collection of relevant work history information and process documentation in Metro systems of record. These records include:
 - Train Operator Training Record
 - Train Operator Certification
 - Train Operator 30-Day work history review
 - Metrorail Safety Rules and Procedures Handbook (MSRPH)
 - National Oceanic and Atmospheric Administration (NOAA)
 - Office of Systems Maintenance, Office of Radio Communications (COMR)
 - Car Maintenance (CMNT) Inspection Data Review

- ROCC Incident Report
- Maximo Data
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback [Radio and Landline Communications]
 - Advanced Information Management System (AIMS)

Investigation

Review of available data and source materials indicates that at approximately 10:54 hours, on Thursday, November 4, 2021, a West Falls Division Train Operator, operating non-revenue service, inbound Red Line Train ID #820 [L2032.2033-2041.2040-2046.2047-2000.2001T] was instructed to move their consist from Shady Grove Yard to Brentwood Yard for further maintenance. The consist had another train operator onboard in the trailing car of the consist. After passing through the RWIC's work zone between Shady Grove and Rockville Stations, the Train Operator was given and repeated instruction from ROCC to proceed up to 10 feet of A13-06 Signal in approach to Twinbrook Station. After the Train Operator arrived at the A13-06 Signal, the signal changed to lunar. Upon observing the lunar signal, the Train Operator transmitted to ROCC that they were moving on the lunar, crossing over from Track 2 to Track 1 in approach to Twinbrook Station. The Train Operator did not request or receive a permissive block beyond A13-06 signal from ROCC prior to moving their consist past the lunar signal at A13-06. The Train Operator was then contacted by ROCC and instructed to hold their train at Twinbrook Station. Upon arrival at Twinbrook Station, the Train Operator was removed from service by an RTRA Supervisor.

Chronological Event Timeline

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

| Time | Description |
|----------------|--|
| 11:01:32 hours | <u>Train Operator of Train ID 820:</u> Central Control, 820, Track 2, Rockville. [Radio Ops 1] |
| 11:01:38 hours | <u>ROCC RTC:</u> 820, thank you for checking in. Go with the message, over. [Radio Ops 1] |
| 11:01:43 hours | <u>Train Operator of Train ID 820:</u> Track 2, 8-car marker, Rockville. I need a block to Twinbrook. How do you copy, 820? [Radio Ops 1] |
| 11:01:49 hours | <u>ROCC RTC:</u> We're not going to go to Twinbrook. We're going to go to red signal. 820, looking out for personnel, you have an absolute block no closer than 10 feet of the A13-06 signal red over. [Radio Ops 1] |
| 11:02:08 hours | <u>Train Operator of Train ID 820:</u> A13 acknowledged. Got permission. 8-car marker, Track 2, Rockville, no closer than 10 feet, A13-06 red, looking out for personnel. 820 moving. [Radio Ops 1] |
| 11:02:21 hours | <u>ROCC RTC:</u> Everyone needs to stop. Everyone needs to stop. A13, standby. A13, do not move. I'm talking to 820 and 820 only. 820 only, come back to central, how do you copy? [Radio Ops 1] |
| 11:02:44 hours | <u>Train Operator of Train ID 820:</u> 820, Central go ahead. [Radio Ops 1] |

| Time | Description |
|----------------|---|
| 11:02:52 hours | <u>ROCC RTC:</u> 820 only, I understand you're at Rockville at this time. Is that correct, you're ready to move, over? [Radio Ops 1] |
| 11:02:55 hours | <u>Train Operator of Train ID 820:</u> 820, Track 2, Rockville. Got an absolute block no closer than 10 feet, A13-06 red, 820. [Radio Ops 1] |
| 11:03:04 hours | <u>ROCC RTC:</u> 820, that is a good copy over. [Radio Ops 1] |
| 11:10:01 hours | <u>Unit 6341:</u> 6341, calling for Central, over. [Radio Ops 1] |
| 11:10:05 hours | <u>ROCC RTC:</u> 6341, go with the message over. [Radio Ops 1] |
| 11:10:09 hours | <u>Unit 6341:</u> Permission to cross over from 2 to 1. How do you copy? [Radio Ops 1] |
| 11:10:14 hours | <u>ROCC RTC:</u> 6341, standby, train coming in. Let me know when it passes, over. [Radio Ops 1] [Radio Ops 1] |
| 11:10:23 hours | <u>Unit 6341:</u> That's a good copy Central. |
| 11:10:26 hours | <u>ROCC RTC:</u> Central out. [Radio Ops 1] |
| 11:12:17 hours | <u>Train Operator of Train ID 820:</u> 820, lunar rail readouts. Moving on lunar 820 crossing over 2 to 1. Twinbrook. [Radio Ops 1] |
| 11:12:25 hours | <u>ROCC RTC:</u> Train 820, when you get to Twinbrook platform, we need you to bring your train to a stop, over. [Radio Ops 1] |
| 11:12:35 hours | <u>Train Operator of Train ID 820:</u> I copy. [Radio Ops 1] |
| 11:12:37 hours | <u>ROCC RTC:</u> Copy, 820. Did you copy me? When you get to Twinbrook platform, you need to stop your train, over. [Radio Ops 1] |
| 11:12:43 hours | <u>ROCC RTC:</u> ROCC RTC contacted the Shady Grove Tower and reported the Train Operator of Train ID 820 moved their train without a block and with the trucks cut out. [Landline] |
| 11:12:45 hours | <u>Train Operator of Train ID 820:</u> 820, acknowledged. Twinbrook, 8-car marker, properly berthed, stop the train. [Radio Ops 1] |
| 11:12:51 hours | <u>ROCC RTC:</u> Good copy, 820. 820 operator that is doubled-ended on the Shady Grove end. Come in over. [Radio Ops 1] |
| 11:13:35 hours | <u>Train Operator of Train ID 820:</u> 820, Track 1 at Twinbrook. [Radio Ops 1] |
| 11:13:39 hours | <u>ROCC RTC:</u> Copy that. Hold your position 820. How do you copy, over? [Radio Ops 1] |
| 11:14:36 hours | <u>Train Operator #2 of Train ID 820:</u> Central, 820 standing by. Twinbrook. I can move at your discretion over. [Radio Ops 1] |
| 11:15:00 hours | <u>Train Operator #2 of Train ID 820:</u> You copy me 820, Central? Standing by, Twinbrook, ready to move, over. [Radio Ops 1] |
| 11:15:08 hours | <u>ROCC RTC:</u> Copy that. 820, stand by, over. [Radio Ops 1] |
| 11:15:35 hours | <u>ROCC RTC:</u> 820, Track 1, Twinbrook, come in over. [Radio Ops 1] |
| 11:15:40 hours | <u>Train Operator #2 of Train ID 820:</u> 820, Central. [Radio Ops 1] |

| Time | Description |
|----------------|--|
| 11:15:42 hours | <u>ROCC RTC:</u> 820 remember, 45 mph between stations, 25 mph through the stations. Verifying all, you have a permissive block not closer than 10 feet of A-13 26 signal over. A-11 26 signal over. [Radio Ops 1] |
| 11:15:40 hours | <u>Train Operator #2 of Train ID 820:</u> Copy that, you said my block is to A-11 26 signal. 45 between, 25 through, over? |
| 11:16:06 hours | <u>ROCC RTC:</u> Good copy 820. Central out. [Radio Ops 1] |
| 11:16:12 hours | <u>ROCC RTC:</u> Unit 25, come in, over. [Radio Ops 1] |
| 11:16:19 hours | <u>Unit 25:</u> 25, Central. [Radio Ops 1] |
| 11:16:21 hours | <u>ROCC RTC:</u> You're coming in low but if you can hear, Unit 25, landline please, over. [Radio Ops 1] |
| 11:16:27 hours | <u>Unit 25:</u> Landline? [Radio Ops 1] |

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

Advanced Information Management System (AIMS) Playback

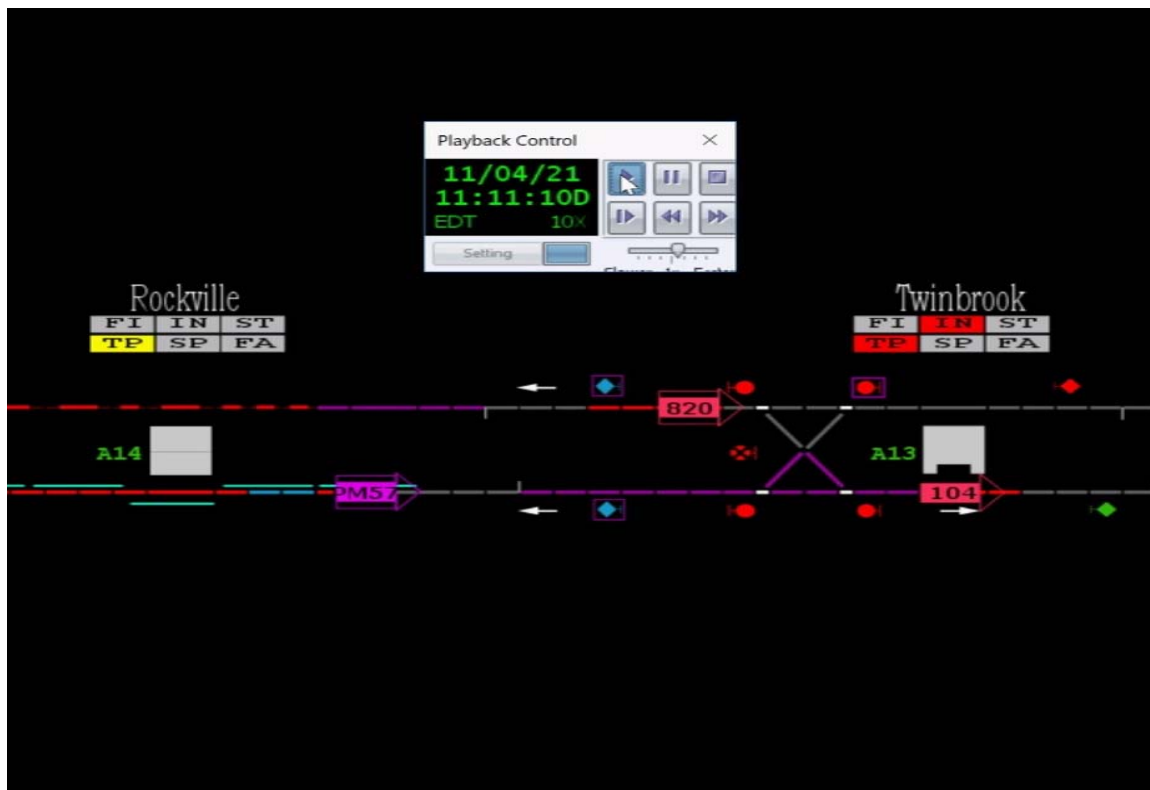


Diagram 1 – At approximately 11:11:10 hours, Train ID 820 approaches A13-06 red signal, Track 2.

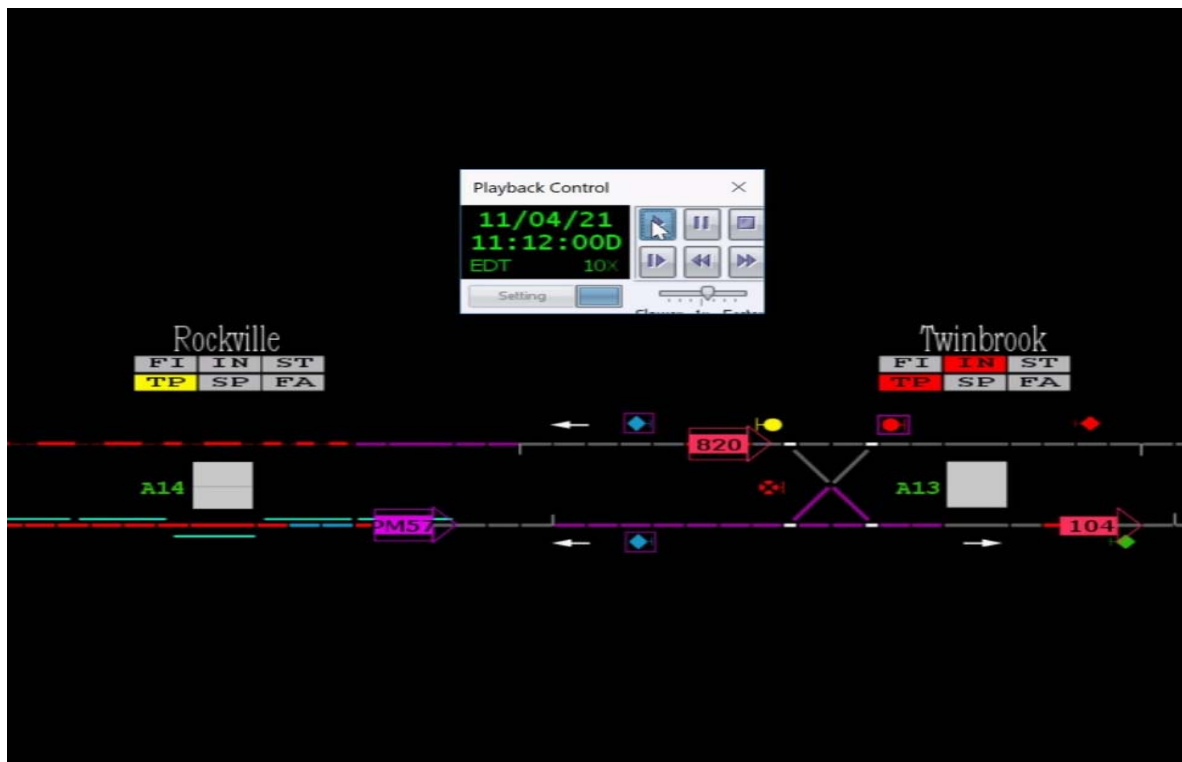


Diagram 2 – At approximately 11:12:00 hours, A13-06 signal changes aspect color(yellow).

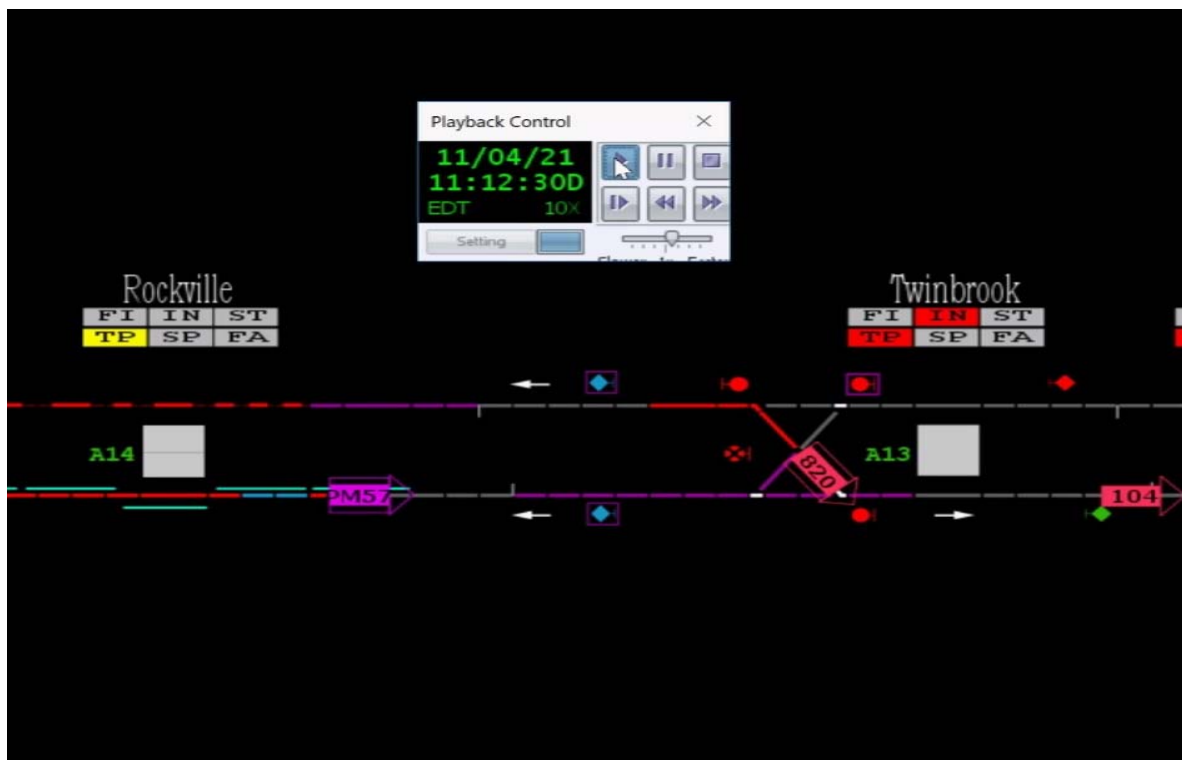


Diagram 3 – At approximately 11:12:30 hours, Train ID 820 passes A13-06 signal (changed to red as train occupied the track circuit) and crossed into the interlocking towards Track 1.

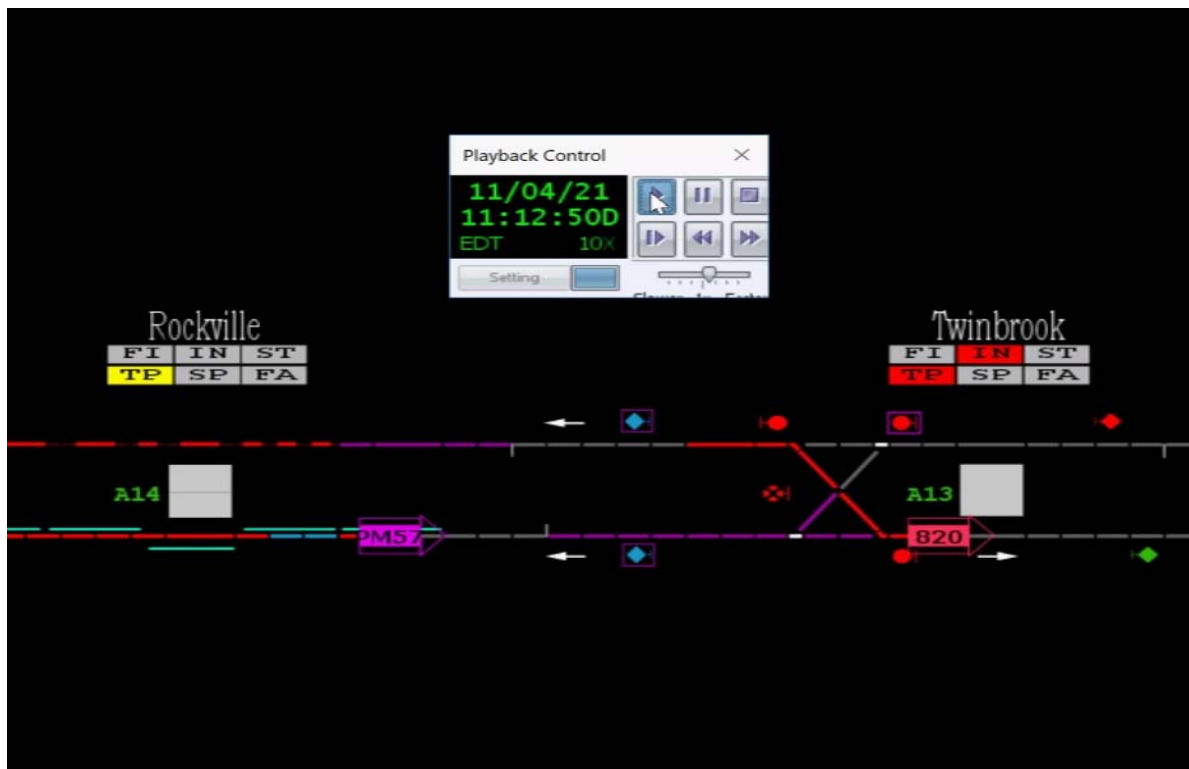


Diagram 4 – At approximately 11:12:50 hours, Train ID 820 approaches Twinbrook Station platform on Track 1.



Diagram 5 – At approximately 11:13:00 hours, Train ID 820 is berthed at Twinbrook Station, 8-car marker, Track 1.

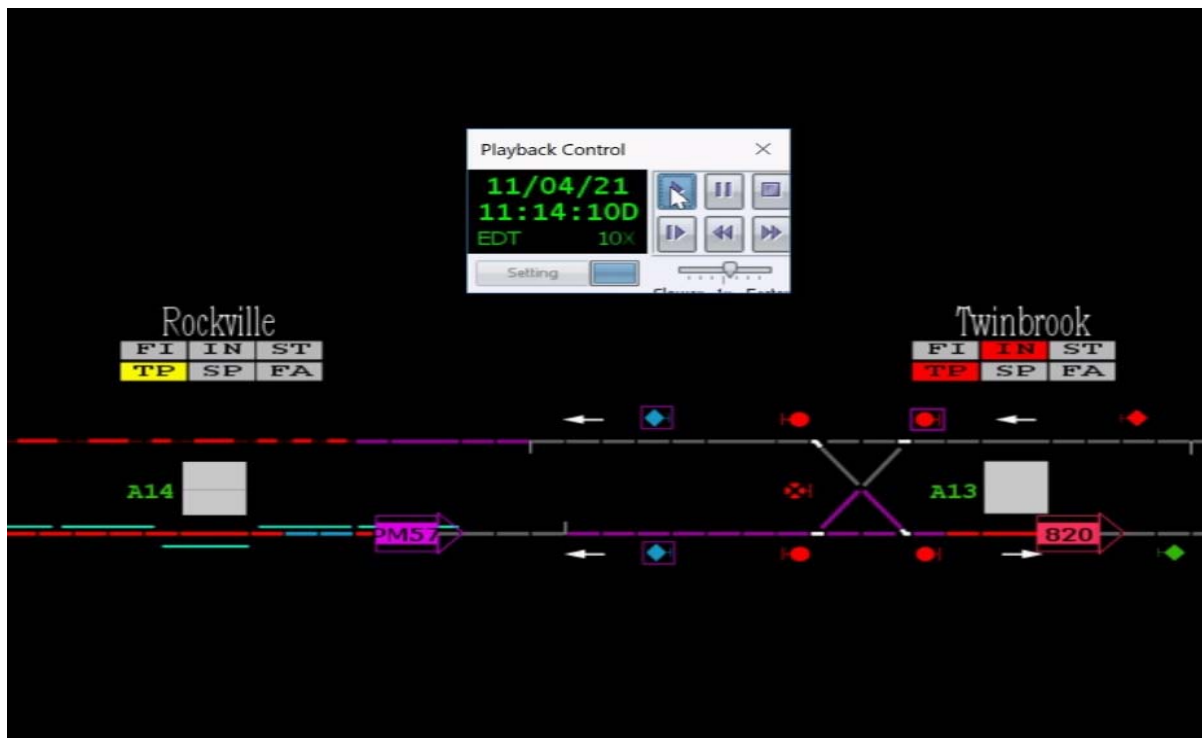


Diagram 6 – At approximately 11:14:10 hours, Train ID 820 departs Twinbrook 8-car marker, Track 1, with a new Train Operator.

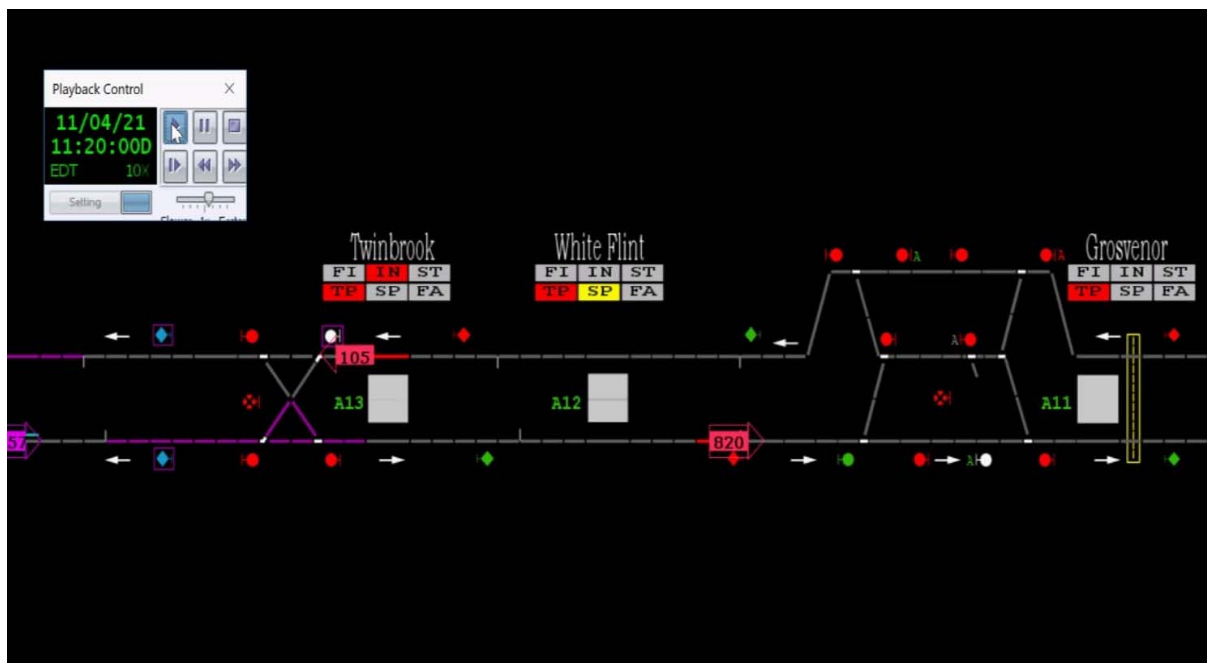


Diagram 7 – At approximately 11:20:00 hours, Train ID 820 continues towards Grosvenor Station, Track 1.

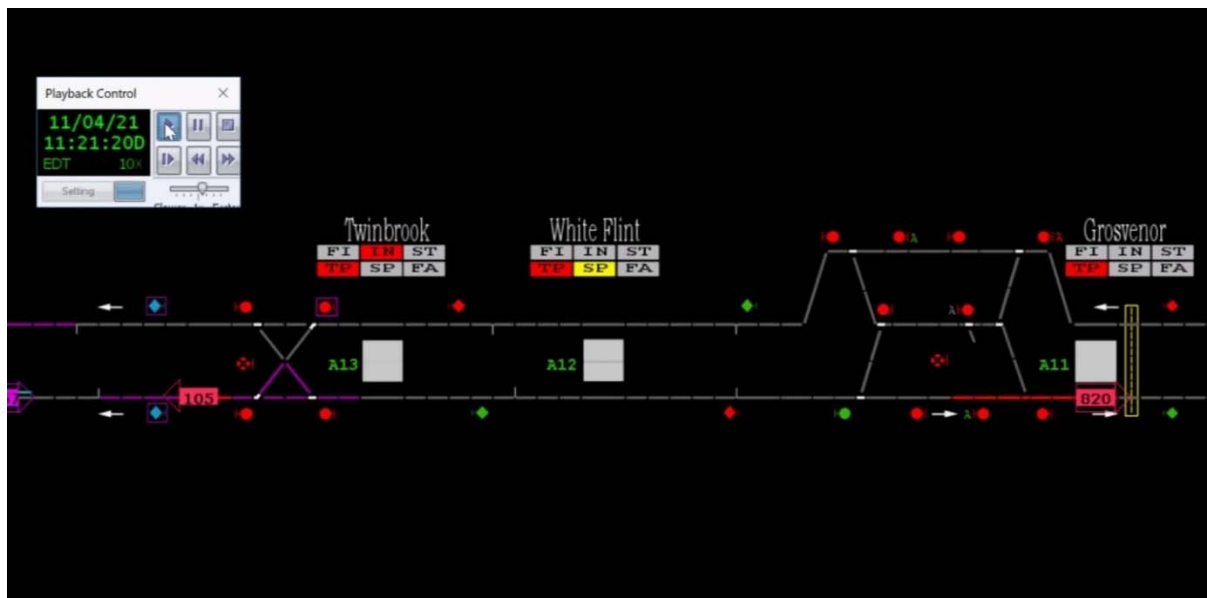


Diagram 8 – At approximately 11:20:20 hours, Train ID 820 approaches Grosvenor Station, 8-car marker Track 1.

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

COMM personnel performed radio checks of the affected area and concluded no defects or issues were found with radio communications near Twinbrook Station. (See Appendix D).

Interview Findings

Based on the investigation launched into the improper train movement near Twinbrook Station, Signal A13-06, SAFE conducted one formal interview with the Train Operator via Microsoft Teams. The interview conducted identified the following key findings associated with this event:

The Train Operator stated they were experiencing radio communication issues with ROCC upon leaving Shady Grove Yard. The Train Operator stated were transporting a non-revenue consist and one car in the center had trucks cut out. They further stated they were instructed to transport the affected consist from Shady Grove Yard to Brentwood Yard for further maintenance. The Train Operator stated they were given a block from ROCC up to Signal A13-06, no closer than 10 feet of the signal, and directed to hold at that position. After receiving a lunar signal, and correct rail alignment, the Train Operator stated they attempted to contact ROCC several times, and after receiving with no responses ROCC, they chose to move the consist in the direction of Twinbrook Station, past Signal A13-06.

Findings

- A13-06 signal was set to red prior to the arrival of Train ID 820 at approximately 11:11 hours.
- Train ID 820 was a non-revenue service train being transported from Shady Grove Yard to Brentwood Yard.
- Car #2046, the fifth car within the consist, had the trucks cuts out while being transported to Brentwood Yard for further maintenance.
- Operating Rule 3.48.3 governs movement of trains with any truck cut out – “Train Operators shall not move non-revenue trains with any number of trucks cut out except

after notifying ROCC and being given permission to move with trucks cut out and a permissive block for the move.”

- During the move to the platform at Twinbrook Station, the Train Operator moved their consist with the trucks cut out and without a permissive block from ROCC.

Weather

At the time of the incident, NOAA recorded the temperature at 48° F, partly sunny, 59% humidity, northeast to southwest winds at 6 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

Train Operator

Evidence of Fatigue:

The incident data was evaluated for evidence of fatigue that may have been present at the time of the incident. Cab video of the involved person was not available to ascertain whether signs of fatigue were present. The Train Operator reported feeling fully alert at the time of the incident and did not report any symptoms of fatigue in the time leading up to the incident.

Fatigue Risk:

Incident data was evaluated for fatigue risk factors. Risk factors for fatigue were identified. The incident time of day (11:12 hours) does not suggest an increased risk of fatigue-related impairment. The employee worked day and overnight shifts in the days leading up to the incident, to include two (2) 11 hour and 20-minute overnight shifts. The employee reported a total of 7 hours of sleep in the 24 hours preceding the incident and was awake for 7.7 hours at the time of the incident. The off-duty period preceding the incident was 24 hours long, which provided the opportunity for 7-9 hours of sleep. The employee reported usual workday sleep durations of 7 hours and no issues with sleep.

A biomathematical fatigue modelling application (SAFTE-FAST WebSFC) was used to further evaluate fatigue risk factors that may have been present in the Train Operator’s schedule. The analysis was based on the Train Operator’s work schedule, reported sleep from the day before the incident, and reported habitual sleep durations. Estimated performance effectiveness at the time of the incident was 74.7%. Specifically, the analysis identified sleep debt (inferring accumulated sleep loss of more than 8 hours) as a factor contributing to an increased risk of fatigue at the time of the incident.



Modeling analysis output shows estimated performance effectiveness during the incident work shift and for the week leading up to the work shift, based on the employee work and reported sleep schedule. Estimates were based on the Train Operator's work schedule, reported sleep from the day preceding the incident, and reported habitual sleep durations (7 hours a day). Bold portions of the modeled curve show work (in black) and sleep times (in blue). Effectiveness is shown on the vertical axis, with colored fields in the chart background signifying ranges of effectiveness scores including high effectiveness (>90%) in green, and low effectiveness (<65%) in red. Time is shown on the horizontal axis. Markers for work and sleep times are shown in the lanes above the time of day on the horizontal axis.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined the Train Operator was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Immediate Mitigation to Prevent Recurrence

- Train Operator removed from service.

Probable Cause Statement

The probable cause of the incident was a failure to follow established procedures as the Train Operator failed to request or receive an updated block and perform a 100% repeat back of instructions given from the ROCC prior to moving their consist. No mechanical or procedural deficiencies were identified during the investigation.

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, and the respective departmental Safety Risk Coordinator (SRC) will manage the mitigation. Refer to the SMS I/A Module for additional information.

| Corrective Action Code | Description | Responsible Party | Due Date |
|---------------------------------|---|--------------------------|-----------------|
| 95097_SAFE CAPS_RTR A_001 | (RC-1) RTRA will ensure the Train Operator receives refresher training regarding radio communications and train operations when blocks are cut out. | RTRA SRC | Completed |

Appendices

Appendix A – Interview Summaries

The below narratives are summaries of the interviews with SAFE and represent the statements made by the involved individuals. As such, times and details may present a conflict with the data contained in systems of record.

Train Operator

This employee is a WMATA Train Operator with a total of 13 years of service: four years as a Bus Operator, and nine year as a Train Operator. The Train Operator's last certification was in July of 2019. This employee has no history of sleep issues to report.

Based on the SAFE interview, the Train Operator stated they were instructed to move a non-revenue service train consist from the Shady Grove Yard to the Brentwood Yard for further repairs. The Train Operator stated they were aware that one of the cars within the consist had the trucks cut out. Upon leaving Shady Grove Yard, the Train Operator reported they experienced difficulties sending and receiving radio transmissions from the ROCC. Upon leaving Shady Grove Yard, the Train Operator stated they received a relayed instruction from the RWIC via the ROCC to proceed to Rockville Station. Once the Train Operator departed Shady Grove, they resumed radio communications with ROCC and were given a block up to 10 feet of Red Signal A13-06. The Train Operator reported they understood and performed a 100% repeat of the instructions. After the Train Operator arrived at Signal A13-06, the signal changed to lunar. The Train Operator stated they attempted to contact ROCC once Signal A13-06 changed to lunar but were unsuccessful in their attempts. The Train Operator then reported the verified they had correct rail alignment and moved the consist past the lunar signal at A13-06, through the interlocking and onto Track 1 while giving ROCC their intended movement. The Train Operator then stated ROCC instructed that they stop the train at the Twinbrook Platform. The Train Operator stated after they arrived at Twinbrook Station, they were removed from service by an RTRA Supervisor.

Appendix B – ROCC Incident Report

View Approved Incident Report

| INCIDENT ID: 2021308RED1 | | | | |
|--|--|--|---|----------------------------------|
| DATE 2021-11-04 | TIME 1113 | LINE Red | ITEM 1 | |
| LOCATION (STATION/YARD) Twinbrook (A13) | | LOCATION/CHAIN MARKER (If Applicable) | | REPORTED BY [REDACTED] |
| TRAIN ID 820 | DIRECTION I/B | TRACK NUMBER 2 | DEPTS NOTIFIED Everbridge Alert/Messaging | |
| CAR NUMBERS (XXXX-XXXX) | | | | |
| Lead Car | | | | |
| 2032-2033 | 2041-2040 | 2046-2047 | 2000-2001 | |
| Caused Issue <input type="checkbox"/> | Caused Issue <input type="checkbox"/> | Caused Issue <input type="checkbox"/> | Caused Issue <input type="checkbox"/> | |
| TRBL CODE OPER | | RESP CODE RTR | | |
| TYPE INCIDENT Operator Moved Train With Trucks Cut-Out Without A Permissive Block For The Move | | | | |
| ACTION PLAN Operator Removed From Service | | | | |
| DELAYS IN MINUTES | | | | |
| LINE | INCIDENT | TRAIN | TOTAL DURATION | |
| 0 | 0 | 0 | 0 | |
| TRIPS MODIFIED | | | | |
| PARTIAL | GAP TRAIN | LATE DISPATCHES | REROUTED | NOT DISPATCHED |
| 0 | 0 | 0 | 0 | 0 |
| FIVE PRIMARY CONSOLE INDICATIONS | | | | |
| BCP | BRAKES ON ILLUMINATED | ALL DOORS CLOSED ILLUMINATED | AUTO\MANUAL ILLUMINATED | BPP |
| | | | AUTO | |
| INCIDENT CHRONOLOGY | | | | |
| TIME | DESCRIPTION | | | |
| 1113 | Train operator [REDACTED], aboard non-revenue Train 820 track two at Twinbrook, moved the train through the interlocking crossing over from track two to track one with trucks cut-out on cars 2046 and 2047 without a permissive block from ROCC for the move. ROCC Assistant Operations Manager, ROIC, SAFE and all concerned personnel were notified. | | | |
| 1114 | Terminal Supervisor [REDACTED] removed Train operator [REDACTED] from service at Twinbrook. As directed personnel assumed controls of train 820 at Twinbrook track one. | | | |

Attachment 1 – Page 1 of 2.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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View Approved Incident Report

| | |
|------|---|
| 1115 | Train 820 continued non-revenue towards Brentwood Yard with permissive blocks at speeds no greater than 45 MPH in between stations and 25 MPH through the stations. |
| 0000 | Note: All concerned personnel involved were instructed to submit an Incident Report by the close of business. |

MAXIMO TICKET#
8569098

| REPORT PREPARED BY | NAME | CLICK TO SIGN |
|---------------------|------|---------------|
| RADIO CONTROLLER 1 | | ✓ |
| BUTTON CONTROLLER 1 | | ✓ |
| RADIO CONTROLLER 2 | | |
| BUTTON CONTROLLER 2 | | |

SUPERINTENDENTS OR ASSISTANTS SECTION

**ADDITIONAL FOLLOW-UP CORRECTIVE
ACTIONS OR REMARKS**

**FOLLOW-UP INFORMATION OBTAINED FROM
SUPPORT DEPARTMENTS**

NOTIFICATIONS/PAGE GROUPS #1/CEO ☐ #2/DGM & BELOW ☒

**ADDITIONAL NOTIFICATIONS MADE BY
PHONE**

| APPROVED BY | NAME | CLICK TO SIGN |
|---|------|---------------|
| REPORT APPROVED BY SUPT. OR ASST SUPT. | | ✓ |

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Attachment 2 – Page 2 of 2.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle
Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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Appendix C – CMNT Work Order Details



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

Page 1 of 2
MX76PROD

Work Order #: 16681469
Type: CM



Status: INPRG
11/03/2021 09:50

Work Description: NO BRAKES ON INDICATION
Job Plan Description:

| Work Information | | | |
|---------------------------|--|--|--------------------------------|
| Asset: R2046 | 2046, RAIL CAR, BRED A, 2000 AC, A CAR | Owning Office: CMNT-CMNT-CMNT | Parent: |
| Asset Tag: R2046 | | Maintenance Office: CMNT-BRWD-INSP | Create Date: 11/03/2021 09:50 |
| Asset S/N: 2046 | | Labor Group: | Actual Start: 11/03/2021 09:50 |
| Location: 1151 | B99, BRENTWOOD YARD | Crew: | Actual Comp: |
| Work Location: 1136 | A99, SHADY GROVE YARD | Lead: | Item: L18050001 |
| Failure Class: CMNT007 | FRICTION BRAKE | GL Account: WMATA-02-33330-50499160-041-*****OPR** | Target Start: |
| Problem Code: 1228 | BRAKES NOT RELEASING / NO 'BRAKES OFF' | Supervisor: | Target Comp: |
| Requested By: | | Requestor Phone: [REDACTED] | Scheduled Start: |
| Chain Mark Start: | | Chain Mark End: | |
| Create-Mileage: 2080898.0 | | Complete-Mileage: 0.0 | |

Task IDs

| Task ID | Description |
|---------|--|
| 10 | VERIFIED BRAKE OFF LIGHT INDICATOR LIGHT DE- ENERGIZED WHILE GREEN EXTERIOR LIGHT ON. FURTHER INFORMATION IN THE COMMENT DETAIL BELOW. NEED FURTHER WORK |
| | Verified Brake Off Indicator Light de-energized in the AUTO STORE and B1-B4 position. Exterior Green light energize open H1A and clear codes. Then ran H1A TEST with a 35 maintenance code showing on front truck H1A UNIT. |
| | Replace H1A with no help to the discrepancy. |
| | Brake on Indicator energizes when the Master Controller is in MANUAL FORWARD B5 (BOTH CAR) BUT from B1- B5 NO BRAKE ON (BOTH CARS). white light and green light issue only on r2046. Needs new LEVELING VALVE on FRONT TRUCK #2 LEVELING VALVE. Needs to be brought into the shop for KA BOX TROUBLE SHOT ISOLATION OF THE MASTER CONTROLLERS. |
| | H1A ASSETS |
| | OLD ASSET: 343286 |
| | NEW ASSET: 333365 |

Component: 6K/7K Work Accomplish: TROUBLE SHOT Reason: INTERMITTENT Status: APPR Position: Warranty?: N

| Task ID | Item | Description | Storeroom | Issue Unit | Quantity | Unit Cost | Line Cost |
|--------------------------|-----------|--------------------------------|-----------|------------|----------|-----------|-----------|
| | M18323001 | UNIT:ELECTRONIC,2K, 3K,RAILCAR | 253 | EA | 1 | \$0.00 | \$0.00 |
| Total Planned Materials: | | | | | | | \$0.00 |

| Task ID | Labor | Start Date | End Date | Start Time | End Time | Approved? | Regular Hours | Premium Hours | Line Cost |
|---------|------------|------------|------------|------------|----------|-----------|---------------|---------------|-----------|
| 10 | [REDACTED] | 11/03/2021 | 11/03/2021 | 05:00 | 13:00 | N | 08:00 | 00:00 | \$309.33 |

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11/9/2021 19:01

Attachment 3 – Page 1 of 2.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle
Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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

Page 2 of 2
MX76PROD

Work Order #: 16681469
Type: CM



Status: INPRG
11/03/2021 09:50

Work Description: NO BRAKES ON INDICATION

Job Plan Description:

| Actual Labor | | | | | | | | | |
|--------------------------|-----------|------------|--------------------------------|------------|------------|------------|---------------|---------------|-----------|
| Task ID | Labor | Start Date | End Date | Start Time | End Time | Approved? | Regular Hours | Premium Hours | Line Cost |
| 10 | | 11/03/2021 | 11/03/2021 | 05:00 | 13:00 | N | 08:00 | 00:00 | \$300.36 |
| Total Actual Hour/Labor: | | | | | | | 16:00 | 00:00 | \$609.69 |
| Actual Materials | | | | | | | | | |
| Task ID | Item | Assetnum | Description | Storeroom | Trans Date | Issue Unit | Quantity | Unit Cost | Line Cost |
| | M18323001 | 333365 | UNIT:ELECTRONIC,2K, 3K,RAILCAR | 253 | 11/03/2021 | EA | 1 | \$0.00 | \$0.00 |
| Total Actual Materials: | | | | | | | | | \$0.00 |
| Failure Reporting | | | | | | | | | |
| Cause | | Remedy | | | Supervisor | | | Remark Date | |
| Remarks: | | | | | | | | | |

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11/9/2021 19:01

Attachment 4 – Page 2 of 2.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle
Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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

Page 1 of 1
MX76PROD

Work Order #: 16681677
Type: CM



Status: INPRG
11/03/2021 12:55

Work Description: FRONT TRUCK LEVELING VALVE LEAKING AIR.
Job Plan Description:

| Work Information | | | |
|---------------------------|--|---|--------------------------------|
| Asset: R2046 | 2046, RAIL CAR, BRED A, 2000 AC, A CAR | Owning Office: CMNT-CMNT-CMNT | Parent: |
| Asset Tag: R2046 | | Maintenance Office: CMNT-BRWD-INSP | Create Date: 11/03/2021 12:54 |
| Asset S/N: 2046 | | Labor Group: | Actual Start: 11/03/2021 12:55 |
| Location: 1151 | B99, BRENTWOOD YARD | Crew: | Actual Comp: |
| Work Location: 1138 | A99, SHADY GROVE YARD | Lead: | Item: L18050001 |
| Failure Class: CMNT011 | TRUCK | GL Account: WMATA-02-33330-50499160-041-*****-OPR** | |
| Problem Code: 2206 | LEVELING OR SUSPENSION DEFECT | Supervisor: | Target Start: |
| Requested By: | | Requestor Phone: [REDACTED] | Target Comp: |
| Chain Mark Start: | | Chain Mark End: | Scheduled Start: |
| Create-Mileage: 2080898.0 | | Complete-Mileage: 0.0 | |

| Failure Reporting | | | |
|-------------------|--------|------------|-------------|
| Cause | Remedy | Supervisor | Remark Date |
| Remarks: | | | |

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11/9/2021 18:57

Attachment 5 – Page 1 of 1.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle
Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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Appendix D – COMR Work Order Details



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

Page 1 of 2
MX76PROD

Work Order #: 16687441
Type: CM



Status: CLOSE
11/10/2021 22:17

Work Description: A13: MTPD REPORTS NO RADIO COMMUNICATION(UPLINK) AT KISS AND RIDE AREA
Job Plan Description:

| Work Information | | | | | | | | | |
|------------------------|--|--|--|---|--|--------------------------------|--|--|--|
| Asset: 60335 | | RADIO, CRCS, REMOTE SITE, T38 | | Owning Office: COMM-TSSM-RADO | | Parent: | | | |
| Asset Tag: | | | | Maintenance Office: COMM-TSSM-RADO | | Create Date: 11/06/2021 08:53 | | | |
| Asset S/N: CRCSRST38 | | | | Labor Group: COMM3RADO | | Actual Start: 11/10/2021 20:50 | | | |
| Location: 3952 | | T38, CARMEN TURNER FACILITY, BUILDING (G) SVMT BODY, 2ND FLOOR | | Crew: | | Actual Comp: 11/10/2021 20:50 | | | |
| Work Location: | | | | Lead: | | Item: N60040086 | | | |
| Failure Class: COMR003 | | RADIO COMMUNICATIONS SYSTEMS | | GL Account: WMATA-02-33540-50499280-042-*****_OPR** | | Target Start: | | | |
| Problem Code: 3669 | | COMMS FAILURE | | Supervisor: | | Target Comp: | | | |
| Requested By: E005581 | | | | Requestor Phone: | | Scheduled Start: | | | |
| Chain Mark Start: | | | | Chain Mark End: | | | | | |
| Create-Mileage: 0.0 | | | | Complete-Mileage: 0.0 | | | | | |

| Task IDs | | | | | | | | | |
|--|-----------------------|--|---------|--|---------------|--|-----------|--|--------------|
| Task ID | | | | | | | | | |
| 10 | see description | | | | | | | | |
| Unit 305 from A13 Station performed radio checks with 387 at CTF. Radio checks was loud and clear on Channel 11, 12, 13 and 14. No audio coming to A13 station when Channel 15 is selected. unable to check other voice channel 1,2,3,4 5,6,7, 8 and 9 as they not being selected at the time of radio checks. Channel 15 at T57(Rockville sub site has to be checked). | | | | | | | | | |
| Component: | Work Accom: | | Reason: | | Status: CLOSE | | Position: | | Warranty?: N |
| 20 | SEE LONG DESCRIPTION. | | | | | | | | |
| WHILE AT A13 KISS AND RIDE AREA SEVERAL RADIO CHECKS WERE MADE WITH UNIT 3130 AT CTF CONSOLE. UNIT 3130 REPORTED RECEPTION OF GOOD AUDIO WHILE CHANNEL 15 WAS SELECTED ON SEVERAL OCCASIONS. ALSO MTPD OFFICER 802 MADE SEVERAL GOOD RADIO CHECKS WITH MTPD DISPATCHER. | | | | | | | | | |
| Component: | Work Accom: | | Reason: | | Status: CLOSE | | Position: | | Warranty?: N |

| Actual Labor | | | | | | | | | |
|--------------------------|-------|------------|------------|------------|----------|-----------|---------------|---------------|-----------|
| Task ID | Labor | Start Date | End Date | Start Time | End Time | Approved? | Regular Hours | Premium Hours | Line Cost |
| 10 | | 11/06/2021 | 11/06/2021 | 14:00 | 18:00 | Y | 04:00 | 00:00 | \$172.85 |
| 10 | | 11/06/2021 | 11/06/2021 | 14:00 | 18:00 | Y | 04:00 | 00:00 | \$166.20 |
| 10 | | 11/06/2021 | 11/06/2021 | 14:00 | 18:00 | Y | 04:00 | 00:00 | \$167.03 |
| 20 | | 11/10/2021 | 11/10/2021 | 14:00 | 18:00 | Y | 04:00 | 00:00 | \$151.62 |
| 20 | | 11/10/2021 | 11/10/2021 | 14:00 | 18:00 | Y | 04:00 | 00:00 | \$172.85 |
| Total Actual Hour/Labor: | | | | | | | 20:00 | 00:00 | \$830.54 |

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01/3/2022 14:32

Attachment 6 – Page 1 of 2.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle
Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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

Page 2 of 2
MX76PROD

Work Order #: 16687441
Type: CM



Status: CLOSE
11/10/2021 22:17

Work Description: A13: MTPD REPORTS NO RADIO COMMUNICATION(UPLINK) AT KISS AND RIDE AREA

Job Plan Description:

| Failure Reporting | | | |
|---------------------------------------|--------------|------------|-------------|
| Cause | Remedy | Supervisor | Remark Date |
| 3435 COMM POLICE RADIO SYSTEM PROBLEM | 1061 ALIGNED | | |
| Remarks: | | | |

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01/3/2022 14:32

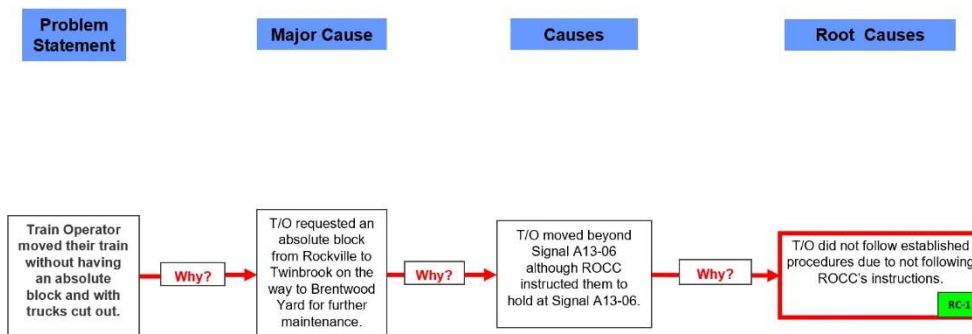
Attachment 7 – Page 2 of 2.

Incident Date: 11/4/2021 Time: 11:12 hours
Final Report Rev. 1 – Improper Rail Vehicle
Movement
E21552

Rev. 1 Drafted By: SAFE 702 – 02/18/2022
Rev. 1 Reviewed By: SAFE 71 – 02/25/2022
Rev. 1 Approved By: SAFE 71 – 02/25/2022

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Appendix E – Root Cause Analysis



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Root Cause Analysis

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

