750 First St. NE • Ste. 900 • Washington, D.C. 20002 Office: 202-384-1520 • Website: www.wmsc.gov

Red Signal Overruns

At or Near Brentwood and Shady Grove rail yards

April 9, 2024 – May 12, 2024

Document Purpose:

This WMSC written report on WMATA Metrorail's safety event investigations and review of Metrorail's findings in accordance with the WMSC Program Standard, in conjunction with the attached Metrorail investigation reports that have undergone WMSC staff review and, if necessary, feedback and revision, describes the investigation activities, identifies factors causing or contributing to the safety events, and sets forth ongoing, additional, or upcoming corrective actions and further oversight work (such as inspections and audits) as necessary or appropriate. The WMSC's ongoing oversight during the investigative process, including safety event reporting and verification, participation in investigative interviews, data review, consistent communication with the Metrorail investigations team, and feedback on Metrorail's reports leads to further improvements prior to consideration of the reports by WMSC Commissioners for adoption. The WMSC's safety event investigation oversight assures the sufficiency and thoroughness of Metrorail's investigations. The WMSC Commissioners are considering these documents (the WMSC review and Metrorail's investigation reports) as a unified item for adoption at the Washington Metrorail Safety Commission meeting on January 28, 2025.

WMSC staff recommend adoption of these investigations.

Red Signal Overruns

In 2024, Metrorail reported 14 red signal overruns, an increase from the 9 reported in 2023. This included events involving passenger trains and events involving maintenance vehicles.

WMSC has conducted its own independent review of these events as they occur to understand the contributing causes and to explore methods for correcting precipitating causes to prevent recurrence. WMSC staff have discussed the specifics with key Metrorail personnel and WMATA has developed corrective action plans to create or improve governing procedures, improve work tools and identify additional types of training for Metrorail employees.

The causes of and contributing factors to the events described in more detail below include:

- Inadequate training, including Metrorail's lack of physical characteristics and territory familiarization and qualification requirements
- Loss of/lack of focus and situational awareness
- Non-compliance with written rules and procedures

Investigations W-356 and W-357 being considered at the January 28, 2025, led to specific corrective actions including:

- Metrorail required personnel to attend refresher training
- Metrorail reissued a Red Signal Overrun Lessons Learned and developed a Lessons Learned regarding the May 15, 2024, safety event.

Metrorail is in the process of implementing related corrective action plans (CAPs) including:

- C-0183 addresses the finding that Metrorail creates safety risks by not requiring and conducting territory familiarization and physical characteristics training and not assessing knowledge of physical characteristics prior to assigning operations personnel work on a line, in a terminal or in a yard (Scheduled completion September 2025).
- C-0268 addresses the finding that Metrorail is not performing its train operator certification activities reliably and consistently in accordance with its safety requirements specified in its Agency Safety Plan and the associated Performance Standardization on Program Manual. Therefore, Metrorail is not ensuring that its trains are only operated by personnel who have demonstrated the skills required to do so safely (Scheduled CAP completion March 2026, interim steps required by the WMSC's February 2024 Train Operator Certification Order were implemented between March and July 2024)

WMSC staff completed an in-depth review of Metrorail safety certification of the Red Line Automatic Train Operations project. This led to WMSC concurring on December 9, 2024, that Metrorail had completed the safety certification process required to implement automatic train operations on the Red Line. The WMSC will continue its in-depth review of the safety certification of the remainder of the project for the rest of the Metrorail lines.

Safety event summaries:

W-0356 – Brentwood Rail Yard – April 9, 2024 (E24282)

A Train Operator leaving Brentwood Rail Yard to transport an out of service train to Glenmont Rail Yard, passed signal B99-22, which was illuminated red (stop), before coming to a stop after traveling an additional 1,092 feet before stopping at red signal B99-180. This was the Train Operator's first time taking a train out of Brentwood Rail Yard and the Train Operator did not identify that they overran the red signal. Prior to the red signal overrun, a Student Interlocking Operator being instructed by a Brentwood Rail Yard Interlocking Operator Instructor during on-the-job training had given the Train Operator an absolute block to the south bump post and then instructed the Train Operator to pass signal B99-64, key down (turn off) the train and then reverse ends.

During an investigative interview the Student Interlocking Operator noted they could sense the Train Operator was unfamiliar with the yard because the Train Operator asked that the instructions be repeated and appeared to be reading a signal sign. The Student Interlocking Operator told the Train Operator to contact the Control Center before the roadway crossing if they were unfamiliar with the yard. The roadway crossing is located before signal B99-22. The Train Operator correctly repeated the instructions. As the Train Operator was carrying out the directive, they entered stop and proceed mode, began moving the train and seconds later passed the red signal.

Minutes later, the Train Operator notified the Interlocking Operator that they were standing by at red signal B99-180. Signal B99-180 is located past signal B99-22. The Interlocking Operator identified that the Train Operator overran the red signal B99-22 and notified a Rail Traffic Controller in the Control Center. During an investigative interview the Student Interlocking Operator reported that the Train Operator stated they became distracted while trying to get to the roadway crossing, which they thought was at the guard booth and missed the signal.

Automatic Train Control personnel who were already conducting work in the yard were instructed to inspect the switch. The throw rod was bent as a result of improper vehicle movement.

W-357 – Shady Grove Rail Yard – May 12, 2024 (E24374)

While conducting yard moves at the direction of the Interlocking Operator, a Train Operator operating a 4-car consist at Shady Grove Rail Yard overran a red signal. Prior to the red signal overrun, the Train Operator coupled two rail cars to the two cars they were operating to create the 4-car consist. After the cars were coupled, the Interlocking Operator granted the Train Operator an absolute block to no closer than 10 feet of signal A99-86, traveling at speeds no greater than 3 mph. After the Train Operator cleared signal A99-90 the Interlocking Operator instructed the Train Operator to key down, however the Train Operator did not acknowledge the radio transmission. The Train Operator continued to operate the train past signal A99-86, which was red. The Interlocking Operator confirmed with the Train Operator that they had passed the red signal by one-half car length. The Control Center and other required WMATA personnel were notified of the safety event.

The Train Operator and Interlocking Operator were removed from service for post-event toxicology testing. There was no damage reported. An inspection of the train determined that there were no defects, and the train operated as commanded.

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

FINAL REPORT OF INVESTIGATION A&I E24282

Date of Event:	April 9, 2024
Type of Event:	Red Signal Overrun
Incident Time:	17:36 hours
Location:	Brentwood Yard, track 1 – Signal B99-22
Time and How received by SAFE:	17:50 hours
WMSC Notification Time:	18:52 hours
Responding Safety Officers:	Office of Safety Investigations (OSI)
Rail Vehicle:	Train ID 805 L3279-3278x3070-3071x3255-3254T
Injuries:	N/A
Damage:	Switch 31 (throw rod and control basket)
Emergency Responders:	None
SMS I/A Number	20240409#116036MX

Table of Contents

Abbreviations and Acronyms

ARS	Audio Recording System
BW-YD	Brentwood Yard
CCTV	Closed-Circuit Television
CMOR-IIT	Office of Chief Mechanical Officer Incident Investigation Team
ER	Event Recorder
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OSI	Office of Safety Investigations
OAP	Operations Administrative Policy
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
RWP	Roadway Worker Protection
SAFE	Department of Safety
SOP	Standard Operating Procedure
VMS	Vehicle Monitoring System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

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

On Tuesday, April 9, 2024, at 17:02 hours, the Brentwood Yard Interlocking Operator informed a Glenmont Division Train Operator who was performing duties in the yard that they needed to transport a six-car train, Train ID 805 (L3279-3278x3070-3071x3255-3245T), from track 1 in Brentwood Yard to Glenmont Yard. Train ID 805 was being transported to Glenmont Yard to be used as an event train for that evening.

At 17:32 hours, the Train Operator informed Brentwood Tower that they had completed the pre-trip inspection and were standing by. The Train Operator was given an absolute block to the south bump post where they were instructed to clear the signal B99-64, key down, and reverse ends.

At 17:33 hours, the Interlocking Operator then gave the Train Operator an absolute block to signal B99-22 red and instructed them to contact the Metro Integrated Command and Communications Center (MICC) when they reached the signal for instructions.

At 17:36 hours, Train ID 805 continued to travel toward the B99-22 signal. The train then traveled 233 feet and came to a stop. The train traveled again another 63 feet and came to a stop. The train passed signal B99-22 red and then came to a stop 762 feet after the signal.

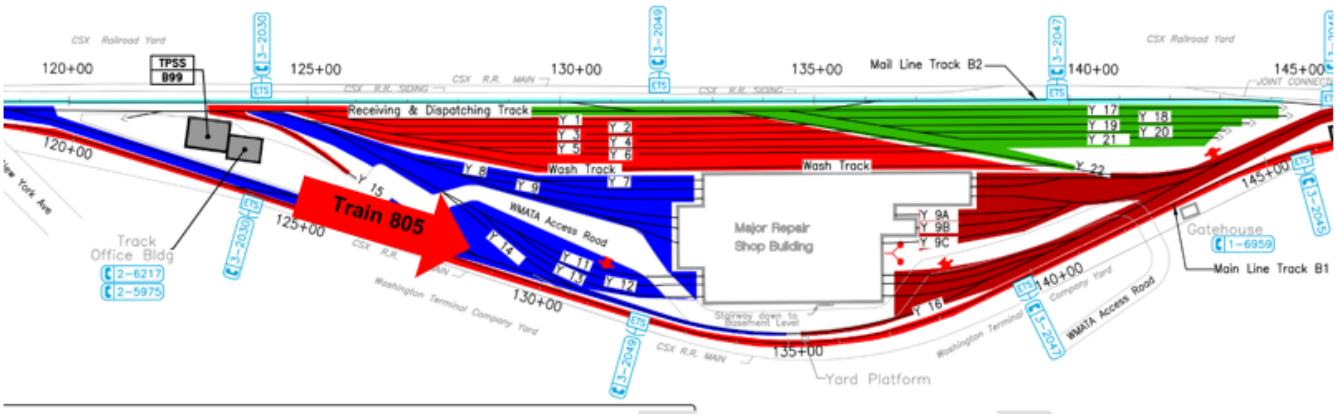
At 17:38 hours, the train traveled again and came to a complete stop 1,092 feet after signal B99-22. As a result, the throw rod and control basket for switch 31 were damaged.

The probable cause of the Red Signal Overrun event at Brentwood Yard on April 9, 2024, was the Train Operator's lack of situational awareness. Train Operator lost focus, failing to see that signal B99-22 was red. The contributing factors to this event were inadequate training and inexperience with operating trains within Brentwood Yard.

Incident Site

Brentwood Yard, track 1 – Signal B99-22

Field Sketch/Schematics



The above depiction is not to scale.

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.

Investigation Methods

Upon receiving notification of the Red Signal Overrun event at the Brentwood Yard on April 9, 2024, SAFE dispatched a cross-functional team to assess the scene and conduct the 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:

- Physical site assessment

- Formal Interviews – SAFE interviewed one individual 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 individual:
    - Train Operator

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

- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
    - Train Operator Written Statement
    - Train Operator Training Records
    - Train Operator Certifications
    - Train Operator 30-Day work History Review
    - Metrorail Operating Rulebook (MOR)

- National Oceanic and Atmospheric Administration (NOAA)
- Maximo Data

- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
  - Audio Recording System (ARS) playback
  - Office of Chief Mechanical Officer Incident Investigation Team (CMOR-IIT) Analysis
  - Vehicle Monitoring System (VMS)

Investigation

On Tuesday, April 9, 2024, at 17:02 hours, the Brentwood Interlocking Operator informed a Glenmont Division Train Operator who was performing duties in the yard that they needed to transport a six-car train, Train ID 805 L3279-3278x3070-3071x3255-3245T, from track 1 in Brentwood Yard to Glenmont Yard. Train ID 805 was being transported to Glenmont Yard to be used as an event train for that evening. At 17:30 hours, the Radio RTC dispatched an RTRA Supervisor to the scene.

The Audio Recording System (ARS) revealed that at 17:32 hours, the Train Operator informed the Interlocking Operator that they had completed the pre-trip inspection and were standing by.

At 17:33 hours, the Interlocking Operator granted the Train Operator an absolute block to the south bump post where they were instructed to pass the signal B99-64, key down, and reverse ends. Once the Train Operator reversed ends, car 3279 was the lead car on the northern end, and then stop and proceed mode was initiated. During this time, the Interlocking Operator was receiving training from another Interlocking Operator.

Shortly after, the Interlocking Operator stated to the Train Operator, “they weren’t sure if it was the Train Operator’s first time in Brentwood Yard but advised them to contact the MICC before they reached the roadway so they don’t block the cars.” The Train Operator repeated the instructions.

The Office of Automatic Train Control Maintenance (ATCM) personnel were already on the scene because they were about to perform a preventative maintenance inspection on a switch in the yard.

At 17:38 hours, the consist passed signal B99-22 red, the train traveled again and came to a complete stop 1,092 feet later.

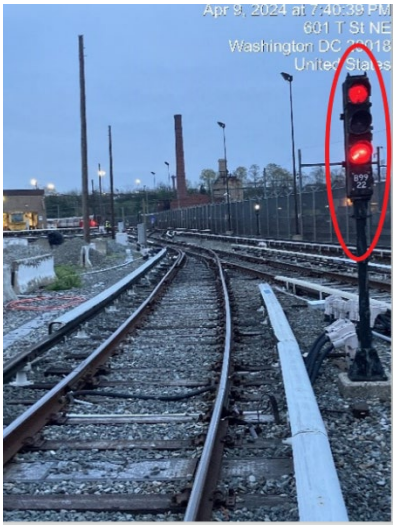


Image 1 – Train ID 805 approaching signal B99-22 displaying a red aspect.

The CMOR-IIT data revealed that Train ID 805 passed signal B99-22 at 12 MPH with the Master Controller in the P1 Power position. The Master Controller was moved to a B5 Braking position bringing the train to a stop 762 feet after signal B99-22. The Master Controller was placed in P1 Power position and the train continued north stopping 1,092 feet after signal B99-22, and a total of 1,633 feet after keying up at signal B99-64. When Train ID 805 passed the red signal B99-22, it caused damage to the throw rod and control basket on switch 31.

Image 2 – Train ID 805 stopped after passing signal B99-22 displaying a red aspect.

Chronological ARS Timeline

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

Time	Description
17:02:20 hours	Brentwood Tower: Informed the Train Operator they needed to transport the train on track 1 next to mainline back to Glenmont Yard and provided the railcar numbers. Train Operator: Acknowledged. [Radio BW-YD1]
17:14:34 hours	Train Operator: Inquired if they needed to conduct an inspection of the train or if the train was already prepared. Brentwood Tower: Advised that a pre-trip inspection needed to be completed because the train had been sitting there all day. [Radio BW-YD1]
17:32:06 hours	Train Operator: Advised that the pre-trip inspection was completed, provided lead car 3254, the train was rolling free, and they were ready and standing by at B99-84 signal. Brentwood Tower: Started to give a repeat back and instructions but told the Train Operator to stand by. [Radio BW-YD1]
17:33:52 hours	Brentwood Tower: Informed the Train Operator they would have a lunar to clear B99-84 signal, an absolute block to the south bump post, then reverse ends behind B99-64 signal and key down. Train Operator: Gave a 100% repeat back. [Radio BW-YD1]
17:34:33 hours	Train 805 (L3279) keyed up facing B99-64. [VMS Analysis]
17:35:00 hours	Stop and proceed mode was activated. [VMS Data]
17:36:05 hours	Train 805 began to move toward the northern direction. [VMS Analysis]
17:36:49 hours	Train 805 passed signal B99-22 at a speed of 12 mph. [VMS Analysis]
17:37:39 hours	Train 805 stopped 762 feet past the signal B99-22. [VMS Analysis]
17:37:42 hours	Train 805 moved again at a speed of 2mph. [VMS Analysis]
17:38:15 hours	Train 805 came to a complete stop 1,092 feet past signal B99-22. [VMS Analysis]
17:40:22 hours	Brentwood Tower: Stated they weren't sure if it was the Train Operator's first time in Brentwood Yard but advised to contact Central before they got to the roadway so they don't block the car. Train Operator: Gave a repeat back. [Radio BW-YD1]
17:43:12 hours	Train Operator: Informed Brentwood Yard they were standing by at what they thought was signal B99-180 red. Brentwood Tower: Instructed the Train Operator to stand by. [Radio BW-YD1]
17:45:19 hours	Brentwood Tower: Contacted the Buttons RTC to inform them that Train ID 805 overran a red signal. [Phone]
17:46:16 hours	Brentwood Tower: Contacted ATC to report the red signal overrun and to request personnel to check switch 31. [Phone]
17:46:28 hours	Buttons RTC: Informed the MICC Operations Manager that there was a red signal overrun in Brentwood Yard. [Phone]
17:48:18 hours	Brentwood Tower: Informed the Train Operator that they overran the signal. [Radio BW-YD1]
17:49:19 hours	Brentwood Tower: Contacted Glenmont Division to inform them that the Train Operator of Train ID 805 overran a red signal in the yard. [Phone]

Time	Description
17:50:41 hours	Buttons RTC: Contacted the Brentwood Tower to obtain the Train Operator's name and division information. [Phone]
17:52:18 hours	Buttons RTC: Contacted the MICC Operations Manager and provided them with the Train Operator's information. [Phone]
18:16:39 hours	Brentwood Tower: Informed the Buttons RTC of the damage to switch 31. [Phone]
20:14:56 hours	Brentwood Tower: Confirmed the train moved to track 3 and resumed normal operation. [Phone]

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

Incident Site Pictures

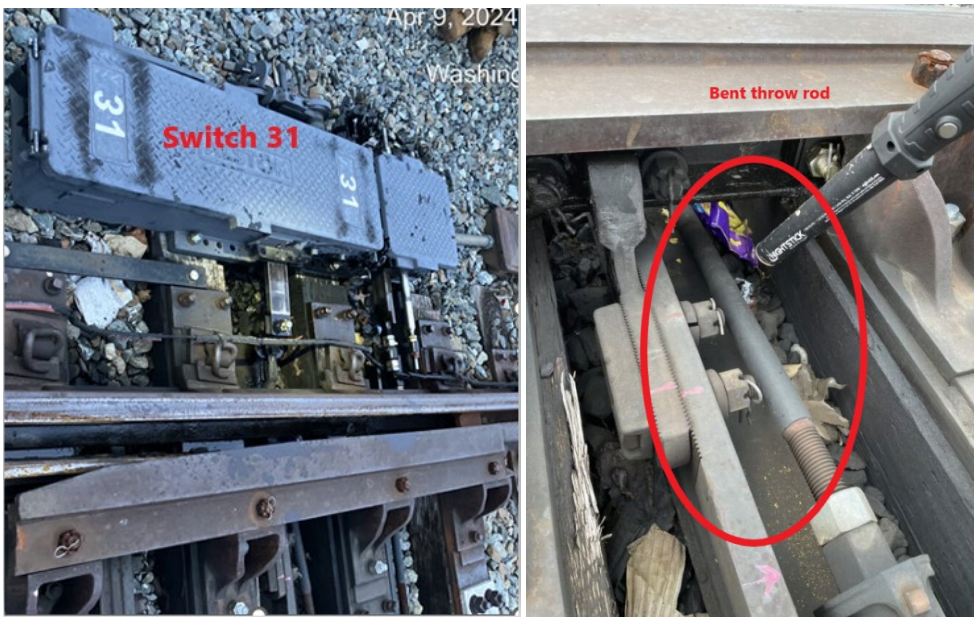


Image 3 – Switch 31 and the bent throw rod after the incident with Train ID 805.

Office of Automatic Train Control Maintenance (ATCM)
Adopted from ATC report:

"The Tower and MOC reported at 1750 hours, a red signal overrun by signal 22 and switch 31. ATC personnel checked the panel and noticed the switch was out of correspondence in the normal position. The crew performed a physical inspection for possible physical damage. They checked the track bed by switch 31 to signal 22 and found a bent throw rod (Rod# 2). They checked inside the switch and did not find physical damage. Switch 31 was laid in a reverse position and unable to be tucked. It was not able to be cranked and clamped as the switch point wasn't able to throw to the end. They removed the fuses and blue tagged the switch and advised the Tower not to send trains through switch 31 (left switch without clamping). Also, they checked the associated relay with switch 31 and signal 22."

Office of Chief Mechanical Officer–Incident Investigation Team (CMOR-IIT)

The CMOR-IIT determined no mechanical fault with the train contributed to the cause of this incident. The VMS and Event Recorder (ER) data indicated Train 805 made a complete stop past 1,092 ft of the B99-22 signal.

Car 3279	
17:34:33.772	Car 3279 keyed up facing B99-64 signal.
17:35:00.688	Stop and Proceed activated.
17:35:43.752	Master Controller placed in P1 power position and train beings to move in the northern direction.
17:36:05.616	Master Controller placed in the B4 Braking position, Train speed was 10 MPH. 233 ft. after key-up, at speeds no greater than 11 MPH.
17:36:17.827	Master Controller placed in the P1 Power position, train begins to move in the northern position.
17:36:24.480	Master Controller placed in the B5 Braking position, train speed was 6 MPH.
17:36:29.720	Train comes to a complete stop after traveling an additional 63 ft., traveling at speeds no greater than 7 MPH.
17:36:32.376	Master Controller placed in the P5 Power position, and train again begins to move in the northern direction.
17:36:49.992	**The train passes B99-22 Signal at a speed of 12 MPH, with the Master Controller in the P1 Power position.**
17:37:36.920	Master Controller placed in B5 Braking position, train speed was 6 MPH.
17:37:39.480	The train came to a stop after traveling 762 ft. beyond B99-22 Signal, traveling at speeds up to 15 MPH.
17:37:42.133	Master Controller place in a P1 Power position, train begins to move in the northern direction.
17:38:14.420	Master Controller placed in the B1 Braking position, Train speed was 2 MPH.
17:38:15.092	Train comes to a complete stop 1,092ft. after passing B99-22 Signal.

Figure 2 – Lead Car 3279 VMS Sequence of Events.

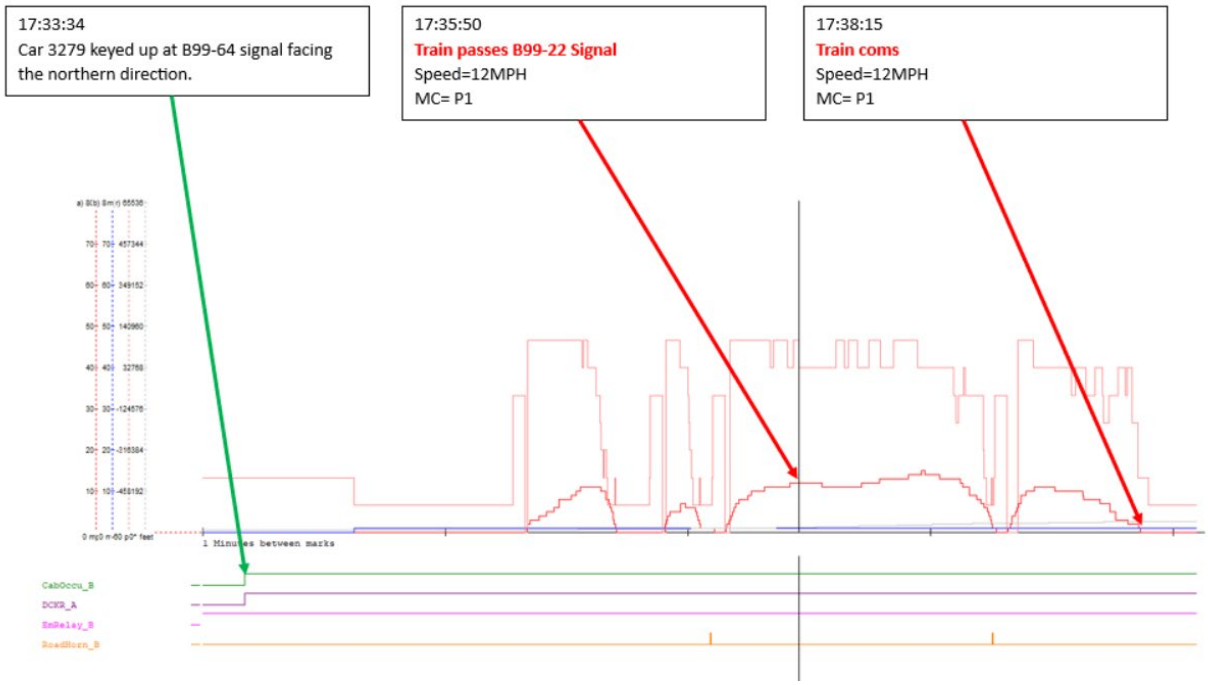


Figure 3 – Lead Car 3279 ER Data

Office of Rail Transportation (RTRA)
Adopted from RTRA report:

Train Operator

- Train Operator since August 30, 2023.
- Train Operator has been employed with WMATA since April 23, 2023.
- Train Operator worked a total of 37.35 hours within the last seven (7) days.
- No reported instances of overtime and/or 8-hour rule violations noted within Trapeze.
- Train Operator's last certification date is August 29, 2023.
- No reported discrepancies with the Train Operator's performance and/or fitness for duty.
- Recent Incidents – None
- Train Operator took out a train from Brentwood Yard for the first time.

Student Interlocking Operator

- Student Interlocking Operator reported that clear instructions were given to Train Operator: "If you are not familiar with this yard, please stop at the roadway and contact central control." Train Operator repeated it all back.
- Student Interlocking Operator reported Train Operator said that "I was so distracted trying to get to the roadway which I thought was at the guard booth, I missed the signal."
- Train Operator subsequently received a post-incident training by taking out a train from Glenmont to Brentwood Yard, and back to Glenmont for a full and complete understanding of entering and exiting Brentwood Yard from track 1 and 2.

Weather

On April 9, 2024, at the time of the incident, NOAA recorded the temperature as 64°F, average wind speed at 3.5 mph, and 63% humidity, observing no significant weather. The weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Washington, DC.

Human Factors

Train Operator

Evidence of Fatigue

We evaluated signs and symptoms of fatigue that may have been present at the time of the incident. No video of the person involved was available to ascertain whether signs of fatigue were present. The Train Operator reported feeling very alert at the time of the incident. The Train Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

We evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Train Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Train Operator performed evening work in the days leading up to the incident. The Train Operator was awake for 5 hours at the time of the incident. The Train Operator reported 9 hours of sleep in the 24 hours preceding the incident. The off-duty period was 27 hours, providing an opportunity for 7-9 hours of sleep. This was a comparable amount of sleep as the Train Operator's usual workday sleep durations. The Train Operator reported no issues with sleep.

Student Interlocking Operator

Evidence of Fatigue

We evaluated signs and symptoms of fatigue that may have been present at the time of the incident. No video of the person involved was available to ascertain whether signs of fatigue were present. The Interlocking Operator reported feeling very alert at the time of the incident. The Interlocking Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

We evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Interlocking Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Interlocking Operator performed evening work in the days leading up to the incident. The Interlocking Operator was awake for 8 hours at the time of the incident. The Interlocking Operator reported 9 hours of sleep in the 24 hours preceding the incident. The off-duty period was 18 hours, providing an opportunity for 7-9 hours of sleep. This was a comparable amount of sleep as the Interlocking Operator's usual workday sleep durations. The Interlocking Operator reported no issues with sleep.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Train Operator complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Related Rules and Procedures

Metrorail Operating Rulebook –
1.1.3 Guiding Safety Principles
3.1.2 Passing a Stop Signal

1.1.3 Employees shall not permit unnecessary conversation, reading, lounging or any other action or condition of mind to divert their attention from the safe and performance of duty.

3.1.2 Rail Traffic Controller or Interlocking Operator shall give permission to pass a red signal after the switches have been clamped for the required move. Once this has been verified, the Rail Vehicle Operator will be given permission to pass the red signal at a speed no greater than five (5) mph.

Interview and Written Statement Findings

As part of the investigation launched into the event, SAFE interviewed the Train Operator. The interview identified the following key findings associated with this event. The findings detailed below include reported information from involved personnel and may conflict with other data sources contained in the report.

Train Operator

- The Train Operator stated that it was their first time taking out a train from Brentwood Yard.
- The Train Operator stated they had not informed the Interlocking Operator that this was their first time taking out a train before the incident.
- The Train Operator stated they did not notice the signal red that they had overrun.
- The Tower informed the Train Operator that they had overrun the signal.

Interlocking Operator (IO) – Student IO at the time of the event

- The IO was a Student IO at the time of the event.
- The IO was receiving on-the-job training provided by an IO Instructor.
- The IO instructed the Train Operator to wait on the roadway with their train for their instruction, stopping at the 22 red signal at Brentwood Yard.
- The IO stated they sensed the Train Operator was unfamiliar with the yard because they asked to repeat the message and appeared to be reading a signal sign.
- The IO stated there was no issue with radio communications at the time of the event.

Interlocking Operator (IO) – Instructor at the time of the event

- The IO was training a Student IO at the time of the event.
- The IO stated that just before the incident, they recalled being advised that the Train Operator was new.
- The Train Operator completed a ground walk around and repeated the Student IO's instruction correctly, so the IO was not concerned by the new Train Operator.
- The IO heard the Student IO instructing Train Operator to stop at the roadway, which was quite away from the 22 signal.
- The IO heard the Student IO giving correct instruction that "B99-22 signal was red."
- The IO did not experience any radio communications issue at the time of the event.

Findings

- The Train Operator lacked situational awareness by focusing on looking for the roadway and failing to see the governing B99-22 signal at the time.
- This was the Train Operator's first time transporting a train from Brentwood Yard.
- The contributing factor in this event was inadequate training on entering and exiting Brentwood Yard for the Train Operator.
- The red signal overrun caused damage resulting with a bent throw rod for Switch 31.

Immediate Mitigation to Prevent Recurrence

- In adherence to Standard Operating Procedure 102-1, which outlines the protocol for Removing an Employee from Service for involvement in an operational safety event, the Radio RTC dispatched a Rail Supervisor to relieve the Train Operator from duty for post-incident testing.
- In accordance with the Office of the Chief Mechanical Officer CMOR-IIT Operations Administrative Policy 102.06, the Rail Operations Control Center (ROCC) promptly removed Train ID 805 from revenue service for post-incident investigative measures. This action adhered to the Rail Vehicle Event Investigation Policy, ensuring a comprehensive incident examination.
- Train Operator received a post-incident training by receiving a refresher of the applicable operating rules and by taking out a train from Glenmont to Brentwood Yard with an instructor, and back to Glenmont for a full and complete understanding of entering and exiting Brentwood Yard from track 1 and 2.

Probable Cause Statement

The probable cause of the Red Signal Overrun event at Brentwood Yard on April 9, 2024, was the Train Operator's lack of situational awareness that focused on looking for the roadway, failing to see B99-22 signal at the time. The contributing factor in this event was inadequate training with entering and exiting Brentwood Yard for the Train Operator who took out the train from the yard for the first time.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
116036_SAFECAP_RTRA_001	Train Operator to attend refresher training with an emphasis on stopping at signals displaying a red aspect and Brentwood Yard layout.	RTRA	Completed

Appendices

Appendix A – Interview Summary

The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.

Train Operator

The Train Operator has been a WMATA employee since August 2023, and has been a Train Operator for the entire time. The Train Operator holds an RWP Level 2 Certification that expires in August 2024.

The Train Operator stated that just prior to the incident, they were given a block to a signal for the train. The Train Operator stated that it was their first time taking a train out from Brentwood Yard but had taken a train into the Yard.

The Train Operator stated they had not informed the Interlocking Operator that this was their first time taking out a train prior to the incident.

The Train Operator stated they did not notice the signal that they had overrun. They learned they had overrun the red signal when they contacted the tower. The Train Operator was not sure of the signal's location.

Interlocking Operator (IO) - Student IO at the time of the incident

The IO has been in the current IO position as of October 6, 2024, currently assigned to Brentwood Division. The IO was a Student IO/on-the job training at the time of the event. The IO worked for WMATA since February 16, 2016, previously working as a Bus Operator and most recently as a Rail Vehicle Operator/Line Platform Instructor. The IO was certified in September 2024 and held RWP Level 2, expiring in July 2025. The IO stated that they were fit for duty on the day of the incident.

At the time of the incident, the IO was receiving on-the-job training provided by an IO instructor. The IO explained that just before the incident, they instructed Train Operator who came from Glenmont, to wait on the roadway with their train for their instruction, stopping at the 22 red signal at Brentwood Yard.

The IO stated they sensed Train Operator was not familiar with the yard because they asked to repeat the message and appeared to be reading a signal sign. There was no issue with radio communications.

The IO stated they gave the instruction to Train Operator. The Train Operator repeated IO's instruction correctly. The IO stated that after the incident, Central called about the train's location showing occupancy of the train in the yard. The train ran the 22 signal red.

The IO stated that the 22 signal was "tricky" because the signal was right behind the roadway. The IO stated they did not communicate with Central regarding the Train Operator's inexperience with the yard. The IO will consider communicating with Central about a new operator in such instances in the future.

Interlocking Operator (IO) – IO Instructor at the time of the incident

The IO has been in the current IO position permanently as of December 2023, currently assigned to Brentwood Division. The IO was serving as an IO instructor at the time of the event. The IO worked for WMATA since June 22, 2001, previously working as a Bus Operator, Station Manager, and several other positions, including as a Rail Vehicle Operator/Line Platform Instructor. The IO was certified in 2019 as "utility" IO and certified again in September 2023. They held RWP Level 4, expiring in November 2024. The IO stated that they were fit for duty on the day of the incident.

At the time of the incident, the IO was training a Student IO who was communicating with the Train Operator. The IO had been serving in the instructor capacity since March 2024. The IO stated that just before the incident, they recalled being advised the Train Operator was a new operator. The Train Operator completed a ground walk around and repeated the instruction correctly, so the IO was not alarmed by the Train Operator.

The IO explained that Brentwood Yard did not have bump post with track number. The Train Operator was given the car number and instructed to key down and reverse ends. The IO stated the Student IO told the Train Operator to stop at the roadway, which was quite away from the 22 signal. The IO thought the Student IO gave good instruction which provided enough time for Train Operator to look for the 22 signal.

The IO stated Central asked about the status of Train Operator's train. They looked on the board and found the train was still in the yard. The train ran a red signal. They contacted the Superintendent and other personnel regarding the incident.

The IO stated they heard the Student IO giving correct instruction to the Train Operator, communicating "B99-22 signal was red." The IO stated they complimented the Student IO for their work. The IO stated they did not need to make any correction to Student IO's communication. They did not experience any radio communications issue.

Appendix B – Certification

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION

Name:	[redacted]	Emp.No:	[redacted]	Division:	Rail Training	Date:	8-29-2023

Reason for Certification: *Please place a check in an area below.*

☑ Certification: Student ☐ Pre-certification: Student ☐ Division Request ☐ Re-Certification ☐ Return to Duty ☐ Other_____

Exam Administered	Score	Date Taken
MSRPH version #:	88 %	7-25-2023
TVOIM/TOIM	93 %	7-25-2023
Supervisor Combination	%	
Practical attempt #: 1	QL- 2	8-29-2023

Equipment *(current/working condition)*	Yes	No
MSRPH	✓	
Perm/Temp/Special Orders	✓	
Troubleshooting Guide	✓	
Flashlight	✓	
Safety Vest	✓	
Footwear	✓	
Identification (One Badge, RWP)	✓	

Comments

Signatures:	Date:
Employee: [redacted]	8/29/23
Examiner: [redacted]	8-29-2023

RTRA-906-01-00 TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION Page 1

Attachment 1 – Train Operator's Certification, Page 1 of 2

TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION (continuation sheet) Emp No.: [redacted] Date: 8-29-2023

CATEGORIES / SUBCATEGORIES	QUALITY LEVEL	REMARKS (*Remarks are required for a quality level score of 2 or 3*)
I. Preparation for Service	QL-2	Cars Used: 7116-7117X7123-7122X7060-7061X7073-7072
1. Exterior Inspection	1	BCCO #7061 Rotary Drum Switch #7072 Barrier Loose #7073
2. Interior Inspection - Trailing Cab	1	Tail/Marker Light c/b tripped #7060
3. Interior Inspection - Each Car	2	Horn c/o #7073 Valance Unsecured #7061
4. Interior Inspection – Oper. Cab	1	ATP seal missing #7072
5. Rolling Test / Rolling Brake Test	1	SG Trk #15
		Time Allotted: 35:00 / Actual Time: 34 : 19
II. Mainline Operation	QL-1	
6. Communications	1	
7. Door Oper. & Station Stopping	1	
8. Use of Horn	1	
9. Speed Adherence/Manual Oper.	1	
10. Turn Back Moves	1	Location: A11 Time Allotted: 02:00 / Actual Time: : 02 min
11. Manual Route Selection	1	Location: A15-06
12. EV Shutoff	1	Time Allotted: 00:30 (1:00) / Actual Time: :05 sec
III. Yard Operation	QL-1	
13. Communications	1	
14. Yard Movements	1	
15. Coupling B to B	1	Time Allotted: 08:00 (12) / Actual Time: 06 : 57 Cars Used: 7117 + 7123
16. Uncoupling	1	Time Allotted: 05:00 (7.5) / Actual Time: 04 : 47 Cars Used: < 7122 > 7060
17. Isolation (Self-Recovery)	1	Time Allotted: 15:00 (22.5) / Actual Time: 12 : 46 Cars Used: 7122 <7060>
18. Manual Switch Operation	1	SG #83
IV. Miscellaneous	QL-1	
19. Recovery Train Operation	1	Time Allotted: 12:00 (18) / Actual Time: 11 : 01 Cars Used: 7060 + 7122
20. Troubleshooting Problem 1	1	Door Problem # (#9,10) #7116 02:59
Problem 2	1	Friction Brake c/b tripped (No Brakes Off / No Reset) #7117 06:13

RTRA-906-01-00 TRAIN OPERATOR AND ROAD SUPERVISOR JOB TASK PROFICIENCY EVALUATION Page 2

Attachment 1 – Train Operator's Certification, Page 2 of 2

Appendix C – MICC Incident Report

Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
ROC Approved Incident Report

Incident Number : 8747416 **SMS Number : SMS ID: 20240409#116036MX**

Red Signal over-run at B99-22 signal, 0/0, B99, RTR, RSIG, 830

Date/Time
04/09/2024 17:41
Trouble Code
RSIG
RED SIGNAL OVERRUN
Responsibility Code
RTR
RAIL TRANSPORTATION
Train ID
830
Line
RED

Station Location
B99: (BRENTWOOD YARD)
Location Details
Direction
Track Number
N/A
Chain Markers

Reported By
Notifications
Resolved By
Approved/Closed by
Org. OCC
ROCC

Delays in Minutes

Line Delay	Train Delay	Passenger Delay
0	0	0

Trips Modified

Partial	Late Dispatch	Rerouted	Not Dispatched	Offloads
0	0	0	0	0

Incident Chronology (Timeline)

Time	Add'l Pass. Delays	Add'l Trouble	Incident Level Code	Description
17:28	0	RSIG	C3	Red Signal over-run at B99-22 signal
17:30				Unit 20 dispatched to Brentwood yard for Post Incident Investigation. Train Operator removed from service.
21:59				TRST 674 en-route ETA 15 minutes
23:31				ATC 274 switch has broken throw rod due to signal being over-run

Attachment 2: MICC Incident Report

Appendix D – RTRA Supervisor Report

RTRA SUPERVISOR REPORT

Date	Incident Time	Incident Location (Station Mezzanine #)	Track/Mezzanine #
4.9.24	5:28pm	Brentwood Yard (B99)	B99-22 Signal ; Switch 31

Equipment Number (Train ID & Car Numbers; Escalator/Elevator #)
Train ID #805 3279-3278x3271-3270x3255-3254

Incident Description
Train Operator [redacted] passed red signal B99-22 and damaged switch 31

WMATA Personnel Involved	Employee #	Rule Violation?	Home Division	Post Incident
Train Operator [redacted]	[redacted]	Yes	Glenmont	Yes
Interlocking Operator [redacted]	[redacted]	No	Brentwood	No
Interlocking Operator [redacted]	[redacted]	No	Brentwood	No

Name	Address	Injury?
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Arrival Time	Unit Number	Person In Charge	Remarks
5:47pm	21	Supervisor [redacted]	Operator was taken for post incident testing
5:47pm	N/A	Assistant Superintendent [redacted]	N/A

Chronological Account of Incident

At approximately 5:47pm, I was informed by Asst. Superintendent [redacted] that an operator ran a red signal in the yard. I accompanied [redacted] to the tower to do our investigation of the incident. Interlocking Operator [redacted] was training Interlocking Operator [redacted] who was the one talking to the operator in question. ATC was in the tower preparing to do [redacted] assesment of the incident. Interlocking Operator [redacted] informed us that Operator [redacted] was on a train that she was supposed to be transporting to Glenmont, that was going to be the event train for the evening; with an ID of 805. [redacted] continued to say that Interlocking Operator [redacted] gave [redacted] clear instructions and even added, "If you are not familiar with this yard, please stop at the roadway and contact central control." and Operator [redacted] repeated it all back.

At 6:24pm, I requested permission to board train 805 and was given permission by Interlocking Operator [redacted] I asked Operator [redacted] if she was ok and she said yes. [redacted] was visibly distraught. I asked her to explain what happened.

[redacted] said, "I was given a block to B99-22 signal. He said, I don't know if you're familiar with the yard, but contact when you get to the roadway. I was so distracted trying to get to the roadway which I thought was at the guard booth, I missed the signal."

I explained to her that [redacted] was going to be taken out of service due to a red signal overrun. [redacted] asked if there was damage and I said yes.

At 6:27pm, Interlocking operator [redacted] asked if the train was clear of the roadway and if personnel can get past by the northbound. I informed [redacted] that people cannot utilize the northbound, they would have to use the southbound.

(Note time for each entry; Include statement of Employee or Witness at conclusion)

Your Arrival Time: 5:47pm

Supervisor Submitting Report	(Payroll #)	Date	Report Reviewed By	Date
[redacted]		4.9.24	[redacted]	4/15/24

Report must be faxed to ROCC 202-962-2808 at end of Tour

Attachment 3: RTRA Supervisor's Report page 1 of 2.

RTRA Supervisor Report
Continuation Page

At 6:33pm, Interlocking Operator [redacted] informed me that Supervisor [redacted] was standing by and I could disembark the train at this time. I informed Operator [redacted] that Supervisor [redacted] would be taking her down for post-incident testing and I exited the train.

At 6:34pm, I cleared the train and the roadway.

At 6:39pm, I requested permission to go to switch 31 to take pictures of the damage. Interlocking Operator [redacted] gave me permission to do so. I spoke with ATC [redacted] and informed him of what I was about to do. [redacted] showed me the damage to the switch and said that this is just his initial inspection and there will be another inspection which may result in more damage found. For now, the throw rod is damaged, and the basket may have to be replaced with it. He asked which direction the train was coming from, and I informed him.

I took all the required images and cleared the roadway at 7:08pm.

Key Findings (Detail Below)

Train Operator [redacted] passed B99-22 signal red unknowingly and caused damage to switch 31.

From what ATC can see at this time, throw rod #2 and the basket will need to be replaced.

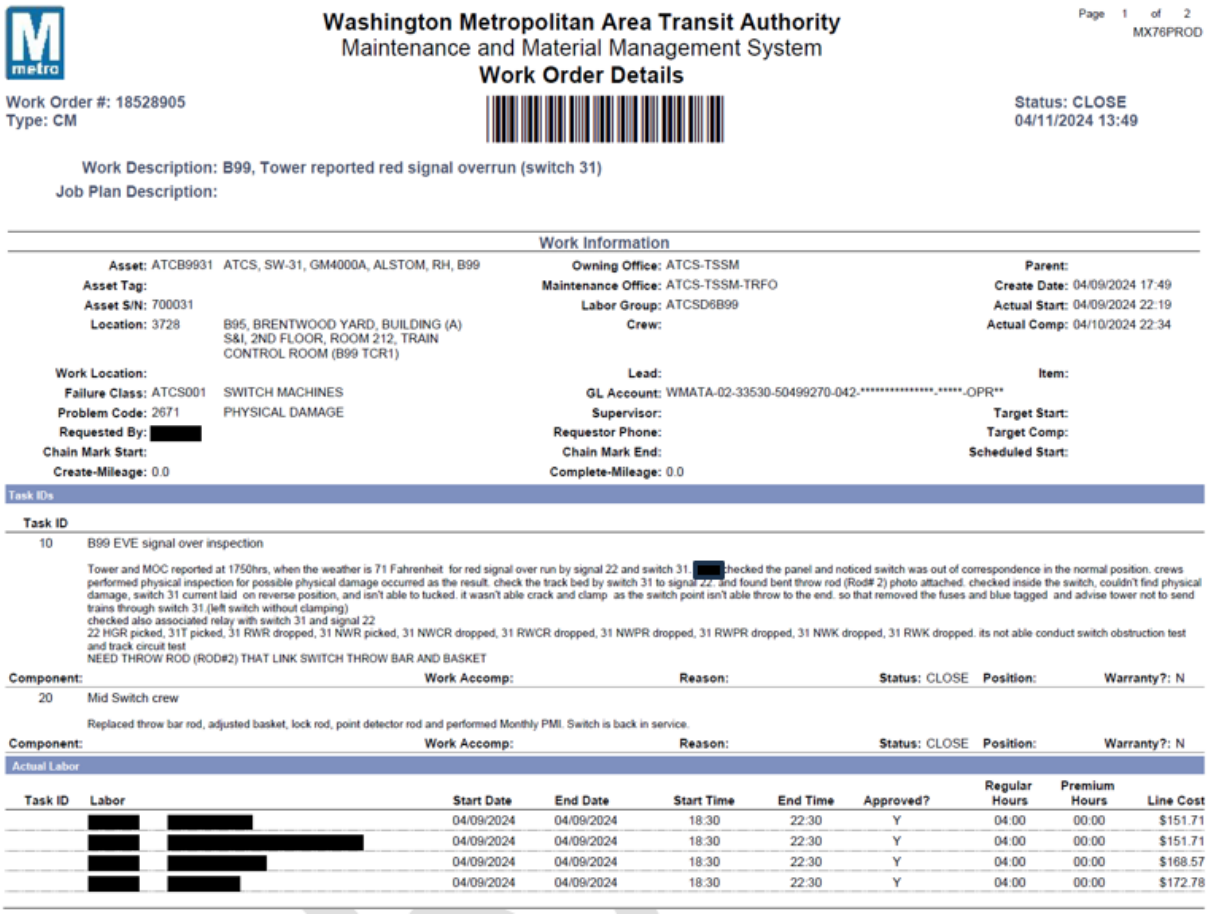
No other switches were damaged.

Supervisor Submitting Report (Initials) [redacted]	Report Review By (Initials) [redacted]

Report must be faxed to ROCC 202-962-2808 at end of tour

Attachment 3: RTRA Supervisor's Report page 2 of 2.

Appendix E– Maximo Work Order



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

Page 1 of 2
MX76PROD

Work Order #: 18528905
Type: CM

Status: CLOSE
04/11/2024 13:49

Work Description: B99, Tower reported red signal overrun (switch 31)
Job Plan Description:

Work Information

Asset:	ATCB9931 ATCS, SW-31, GM4000A, ALSTOM, RH, B99	Owning Office:	ATCS-TSSM	Parent:	
Asset Tag:		Maintenance Office:	ATCS-TSSM-TRFO	Create Date:	04/09/2024 17:49
Asset S/N:	700031	Labor Group:	ATCSD6B99	Actual Start:	04/09/2024 22:19
Location:	3728 B95, BRENTWOOD YARD, BUILDING (A) S&I, 2ND FLOOR, ROOM 212, TRAIN CONTROL ROOM (B99 TCR1)	Crew:		Actual Comp:	04/10/2024 22:34
Work Location:		Lead:		Item:	
Failure Class:	ATCS001 SWITCH MACHINES	GL Account:	WMATA-02-33530-50499270-042-**********-*****-OPR**		
Problem Code:	2671 PHYSICAL DAMAGE	Supervisor:		Target Start:	
Requested By:	[redacted]	Requestor Phone:		Target Comp:	
Chain Mark Start:		Chain Mark End:		Scheduled Start:	
Create-Mileage:	0.0	Complete-Mileage:	0.0		

Task IDs

Task ID	
10	B99 EVE signal over inspection

Tower and MOC reported at 1750hrs, when the weather is 71 Fahrenheit for red signal over run by signal 22 and switch 31 [redacted] checked the panel and noticed switch was out of correspondence in the normal position. crews performed physical inspection for possible physical damage occurred as the result. check the track bed by switch 31 to signal 22 and found bent throw rod (Rod# 2) photo attached. checked inside the switch, couldn't find physical damage, switch 31 current laid on reverse position, and isn't able to tucked. it wasn't able crack and clamp as the switch point isn't able throw to the end. so that removed the fuses and blue tagged and advise tower not to send trains through switch 31.(left switch without clamping)
checked also associated relay with switch 31 and signal 22
22 HGR picked, 31T picked, 31 RWR dropped, 31 NWR picked, 31 NWCR dropped, 31 RWCR dropped, 31 NWPR dropped, 31 RWPR dropped, 31 NWK dropped, 31 RWK dropped. its not able conduct switch obstruction test and track circuit test
NEED THROW ROD (ROD#2) THAT LINK SWITCH THROW BAR AND BASKET

Component: Work Accomp: Reason: Status: CLOSE Position: Warranty?: N

20 Mid Switch crew

Replaced throw bar rod, adjusted basket, lock rod, point detector rod and performed Monthly PMI. Switch is back in service.

Component: Work Accomp: 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
	[redacted]	04/09/2024	04/09/2024	18:30	22:30	Y	04:00	00:00	$151.71
	[redacted]	04/09/2024	04/09/2024	18:30	22:30	Y	04:00	00:00	$151.71
	[redacted]	04/09/2024	04/09/2024	18:30	22:30	Y	04:00	00:00	$168.57
	[redacted]	04/09/2024	04/09/2024	18:30	22:30	Y	04:00	00:00	$172.78

Attachment 4: Maximo Repair Work Order page 1 of 2

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

Work Order #: 18528905
Type: CM

Status: CLOSE
04/11/2024 13:49

Work Description: B99, Tower reported red signal overrun (switch 31)
Job Plan Description:

Actual Labor

Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost
	[redacted]	04/09/2024	04/09/2024	18:30	22:30	Y	04:00	00:00	$196.01
	[redacted]	04/10/2024	04/10/2024	00:00	05:30	Y	05:30	00:00	$237.57
	[redacted]	04/10/2024	04/10/2024	00:00	05:30	Y	05:30	00:00	$231.78
	[redacted]	04/10/2024	04/10/2024	00:00	05:30	Y	05:30	00:00	$237.57
	[redacted]	04/10/2024	04/10/2024	00:00	05:30	Y	05:30	00:00	$237.57
	[redacted]	04/10/2024	04/10/2024	00:00	05:30	Y	05:30	00:00	$270.83
						Total Actual Hour/Labor:	47:30	00:00	$2,056.10

Related Incidents

Ticket	Description	Class	Status	Relationship
8747416	Red Signal over-run at B99-22 signal, 0/0, B99, RTR, RSIG, 830	SR	CLOSED	RELATED

Failure Reporting

Cause		Remedy		Supervisor	Remark Date
0037	HIT BY TRAIN/ TRACK EQUIPMENT	2837	REPLACED PARTS		04/10/2024
Remarks:	Replaced throw rod				

Attachment 4: Maximo Repair Work Order page 2 of 2

Appendix F – ATC Report

SW#3, Red Signal over run

ATC-1000 1019
Interlocking Inspection

Location Name: B99 Date: 4/9/24 Work Order#: 18528905

Step	Inspections	(✓)	Observations	Remedial Actions
1.1	Interlocking HW not loose/missing pin bonds/railhead bonds, and wiring intact/secured.	✓		
1.2	IJ's, cadweld bonds not defective, broken or frayed	✓		
1.3	Gauge plate/switch rods insulators not defective	✓		
1.4	Loops in good condition and properly mounted	N/A		
1.5	Impendance bonds and fastenings intact/secure	N/A		
1.6	MCM rail clamps, cembre connectors secure	N/A		
1.7	Switch riser plates for adequate lubrication	✓		
1.8	Block Box equipment complete and in Functional Condition (Contains working equipment)	✓		
1.9	Junction box checked	✓		
1.10	ATO Markers in good condition and secure	N/A		
1.11	Drainage check	N/A		
1.12	Safety wire properly installed on cannon connectors	N/A		
2.1	Switch (and derail) layout hardware checked	X	Throw Rod (Rod#2) is bent due to frosted switch	
2.2	Point rail closure, excessive wear or damage - derailing device marked with high visibility paint.	X		
2.3	Derail Paint	N/A		
2.4	Jamb nuts on rods not loose	✓		
2.5	Switch layout for excessive pumping or movement	✓		
2.6	Cable conduit and fittings in good condition	✓		
3.1	Jamb nuts and couplings under snow covers checked (not lose or missing).	✓		
3.2	Switch machine mounting bolts secure	✓		
3.3	Switch numbering, switch covers, snow covers.	✓		
3.4	Crank cover closed and secured. Padlocks in place on all covers.	✓		
3.5	All required snow cover installed and secured in place.	✓		
4.1	Signal assembly hardware not missing - signal mast, foundation, mounting secure.	✓		
4.2	Signal lenses clean and clear	✓		
4.3	Signal name plate checked	✓		
4.4	Signal aspects checked, not dark or dim	✓		
4.5	Signal padlocks in place	✓		
4.6	Signal paint and condition checked	✓		
4.7	Wiring and Cables in good condition	✓		

Additional Remarks: [redacted]

Signatures

Technician, Emp No & Date: [redacted] 4/9/24.

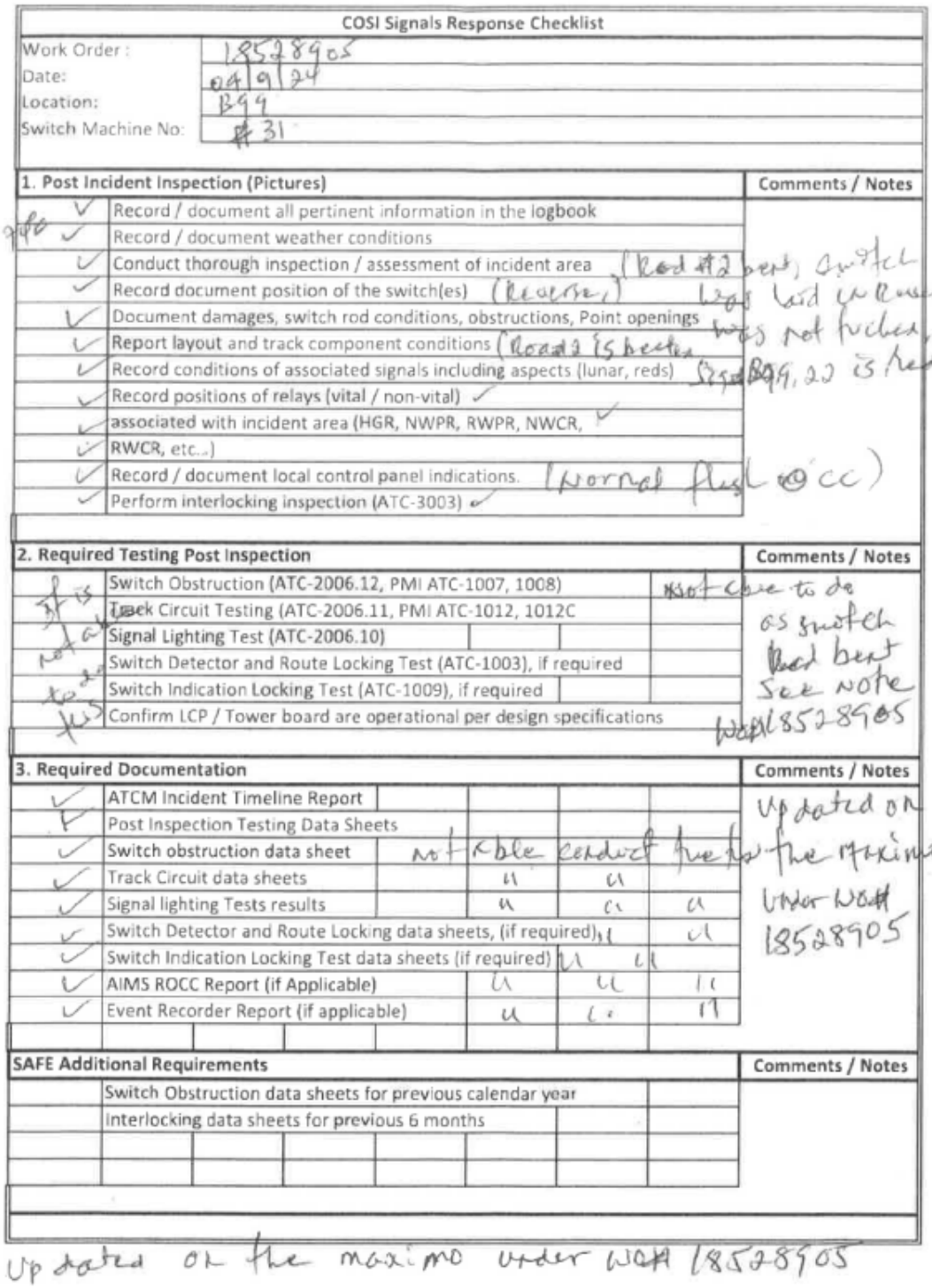
Supervisor Approval, Emp No & Date:

Compliance Supervisor Review, Emp No & Date:

Need Throw Rod. (Heat Link Switch Throw bar and basket)

Interlocking Inspection ATC-1019 Rev 5.2

Attachment 5: ATC Interlocking Inspection Report page 1 of 2.



COSI Signals Response Checklist

Work Order: 18528905
Date: 04/9/24
Location: B44
Switch Machine No: #31

1. Post Incident Inspection (Pictures)		Comments / Notes
✓	Record / document all pertinent information in the logbook	
✓	Record / document weather conditions	
✓	Conduct thorough inspection / assessment of incident area (Rod #2 bent, switch	
✓	Record document position of the switch(es) (Reverse) Lead laid in Reverse	
✓	Document damages, switch rod conditions, obstructions, Point openings was not fouled,	
✓	Report layout and track component conditions (Road 3 is bent	
✓	Record conditions of associated signals including aspects (lunar, reds) Sig B44, 22 is Red.	
✓	Record positions of relays (vital / non-vital) ✓	
✓	associated with incident area (HGR, NWPR, RWPR, NWCR, ✓	
✓	RWCR, etc...)	
✓	Record / document local control panel indications. (Normal flash 60 cc)	
✓	Perform interlocking inspection (ATC-3003) ✓	

2. Required Testing Post Inspection		Comments / Notes
	Switch Obstruction (ATC-2006.12, PMI ATC-1007, 1008) Not able to do	
	Track Circuit Testing (ATC-2006.11, PMI ATC-1012, 1012C	
	Signal Lighting Test (ATC-2006.10)	
	Switch Detector and Route Locking Test (ATC-1003), if required	
	Switch Indication Locking Test (ATC-1009), if required	
	Confirm LCP / Tower board are operational per design specifications	

3. Required Documentation		Comments / Notes
✓	ATCM Incident Timeline Report	
✓	Post Inspection Testing Data Sheets	
✓	Switch obstruction data sheet Not able conduct due to the	
✓	Track Circuit data sheets " " "	
✓	Signal lighting Tests results " " "	
✓	Switch Detector and Route Locking data sheets, (if required) " "	
✓	Switch Indication Locking Test data sheets (if required) " "	
✓	AIMS ROCC Report (if Applicable) " " "	
✓	Event Recorder Report (if applicable) " " "	

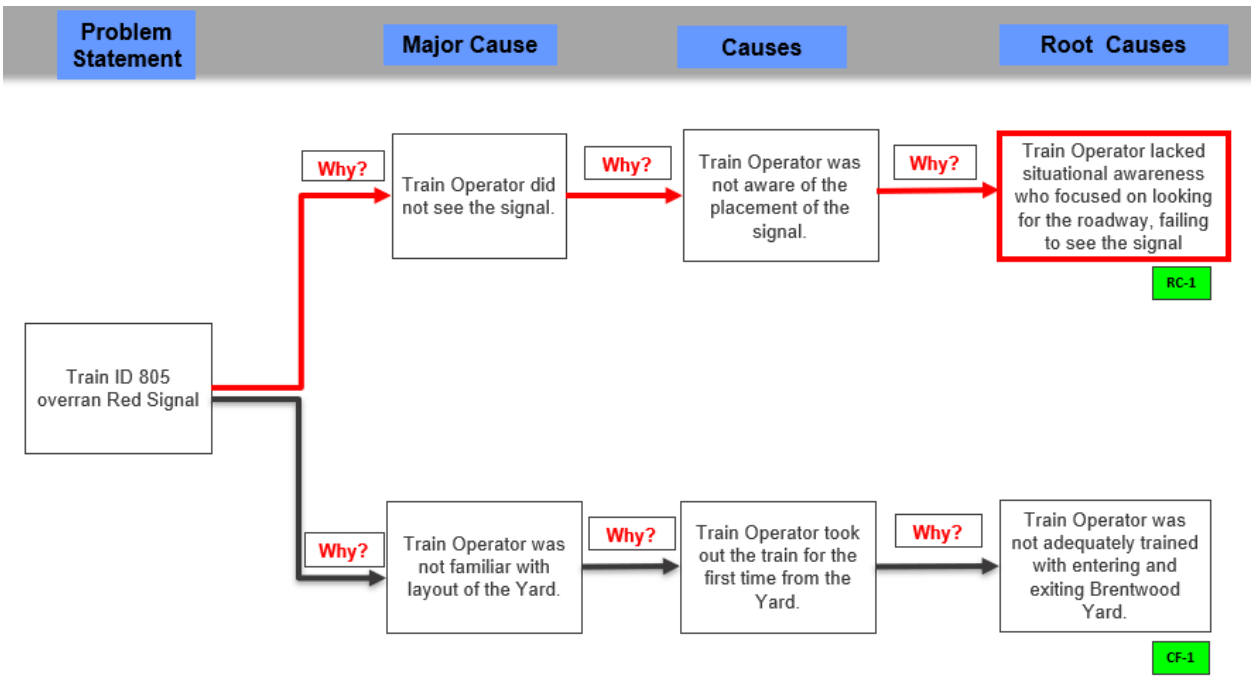
SAFE Additional Requirements		Comments / Notes
	Switch Obstruction data sheets for previous calendar year	
	Interlocking data sheets for previous 6 months	

Updated on the maximo under WO# 18528905

Updated on the maximo under WO# 18528905

Attachment 5: ATC Interlocking Inspection Report page 2 of 2.

Appendix G – Why-Tree Analysis


Problem Statement
Major Cause
Causes
Root Causes
Train ID 805 overran Red Signal
Why?
Train Operator did not see the signal.
Why?
Train Operator was not aware of the placement of the signal.
Why?
Train Operator lacked situational awareness who focused on looking for the roadway, failing to see the signal
RC-1
Why?
Train Operator was not familiar with layout of the Yard.
Why?
Train Operator took out the train for the first time from the Yard.
Why?
Train Operator was not adequately trained with entering and exiting Brentwood Yard.
CF-1

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

FINAL REPORT OF INVESTIGATION A&I E24374

Date of Event:	May 12, 2024
Type of Event:	O-8: Red Signal Overrun
Incident Time:	17:58 hours
Location:	Shady Grove Yard (A99)
Time and How received by SAFE:	18:14 hours MICC Notification
WMSC Notification Time:	18:21 hours
Responding Safety Officers:	Office of Safety Investigations (OSI)
Rail Vehicle:	[L7158/59**X**7125/24T]
Injuries:	None
Damage:	None
Emergency Responders:	None
SMS I/A Number	2024040512#116838MX

Red Signal Overrun

Table of Contents

Abbreviations and Acronyms

AOM	Assistant Operations Manager
ARS	Audio Recording System
ATC	Office of Automatic Train Control
ATCE	Automatic Train Control Engineering
ATCM	Automatic Train Control Maintenance
BTRA	Office of Bus Transportation
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CENV	Office of Vehicle Program Services, Rail Fleet
CMNT	Office of Car Maintenance
CMOR	Office of the Chief Mechanical Officer
ERT	Emergency Response Team
ESR	Event Scene Release
CMOR IIT	Office Chief Mechanical Officer Incident Investigation Team
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
MTPD	Metro Transit Police Department
NOAA	National Oceanic and Atmospheric Administration
OM	Operations Manager
OSI	Office of Safety Investigations
RPM	Rail Performance Monitor
RTC	Rail Traffic Controller
RVO	Rail Vehicle Operator
RTRA	Office of Rail Transportation
SAFE	Department of Safety
SMS	Safety Measurement System
SOP	Standard Operating Procedure
TRST	Office of Track and Structures
VMDS	Vehicle Monitoring and Diagnostic System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

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

On Sunday, May 12, 2024, at 17:54 hours, a Shady Grove Division Rail Vehicle Operator (RVO) operating a four (4) car consist [L7158/59**X**7125/24T] within the Shady Grove Yard when the Interlocking Operator granted them an absolute block to move from 8 South to no closer than 10 feet of signal A99-86 signal displaying a red aspect. The RVO acknowledged the transmission with 100% repeat back and initiated the move. Once the RVO cleared the A99-90 signal, the Interlocking Operator informed the RVO to key down and began updating their Rail Performance Monitor (RPM) records. At 17:58 hours, according to the Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) VMDS download, the RVO passed signal A99-86, displaying a red aspect, traveling 9 MPH, and stopped 82 feet beyond the red signal.

The Interlocking Operator instructed the RVO to confirm that signal A99-86 had been passed. Once confirmed, the Interlocking Operator instructed the RVO to key down, exit the train, and report to the administrative building. The Interlocking Operator reported the incident to the Metro Integrated Command and Communications Center (MICC) Radio Rail Traffic Controller (RTC) and Automatic Train Control Maintenance (ATCM) Desk. ATCM personnel, a Track and Structures (TRST) Emergency Response Team (ERT), and a Rail Transportation (RTRA) Supervisor were dispatched to the location.

There was no damage or injuries resulting from this event.

In adherence to Standard Operating Procedure 102-01-02, which outlines the protocol for Removing an Employee from Service for involvement in an operational safety event, the RTC dispatched a Rail Supervisor to relieve the RVO and the Interlocking Operator from duty for post-incident testing.

In accordance with the Office of the Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Operations Administrative Policy (OAP) 102.06, the RTRA Supervisor promptly initiated the removal of the consist for post-incident investigative measures. This action adhered to the Rail Vehicle Event Investigation Policy, ensuring a comprehensive examination of the incident.

The probable cause of the Red Signal Overrun event at Shady Grove Yard on May 12, 2024, was inattentiveness on behalf of the RVO. Specifically, the RVO acknowledged the instructions the Interlocking operator gave and was aware that signal A99-86 was red before moving the train.

Contributing to this incident was complacency on behalf of the Interlocking Operator. Specifically, the Interlocking Operator failed to monitor the move to its completion and began updating their RPM records.

Incident Site

Shady Grove Yard (A99), Signal A99-86

Field Sketch/Schematics

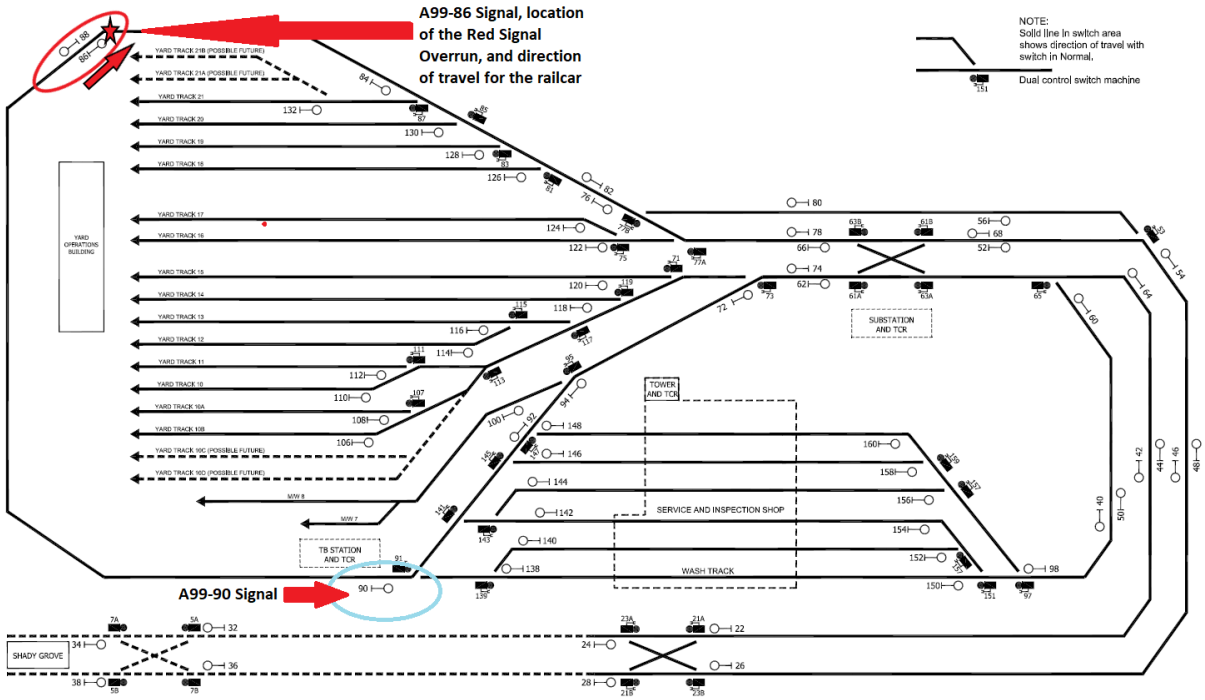


Figure 1 - depicts the Red Signal Overrun at A99-86 Signal in Shady Grove Yard (A99)

The above depiction is not to scale.

Purpose and Scope

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

Investigative Methods

Upon receiving notification of the Red Signal Overrun at the Shady Grove Yard on May 12, 2024, Safety dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. Safety team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Physical Site Assessment

- Formal Interviews – Safety interviewed two (2) individuals as part of this investigation. The interviews included persons present at, during, and after the incident, those directly

involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). Safety interviewed the following individuals:

- RVO
- Interlocking Operator

- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
  - RVO Training Records
  - RVO Certifications
  - RVO 30-Day work history review
  - Interlocking Operator Training Records
  - Interlocking Operator Certifications
  - Interlocking Operator 30-Day work history review
  - Metrorail Operating Rulebook (MOR)
  - National Oceanic and Atmospheric Administration (NOAA)
  - Metro Integrated Command and Control (MICC) Incident Report
  - Maximo Data

- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
  - ARS (Audio Recording System) playback [Radio and Landline Communications]
  - CMOR IIT Vehicle Monitoring and Diagnostic System (VMDS)
  - Closed-Circuit Television (CCTV)

Investigation

On Sunday, May 12, 2024, at 17:35 hours, an RVO working in the Shady Grove Division Yard (A99) was operating a two (2) car consist [L7159/58T] within Shady Grove Yard. The RVO was given an absolute block by the Interlocking Operator from signal A99-106, which displayed a lunar aspect, to no closer than 10 feet of signal A99-42, which displayed a red aspect (see Figure 2). The RVO was then instructed to reverse ends towards signal A99-64.

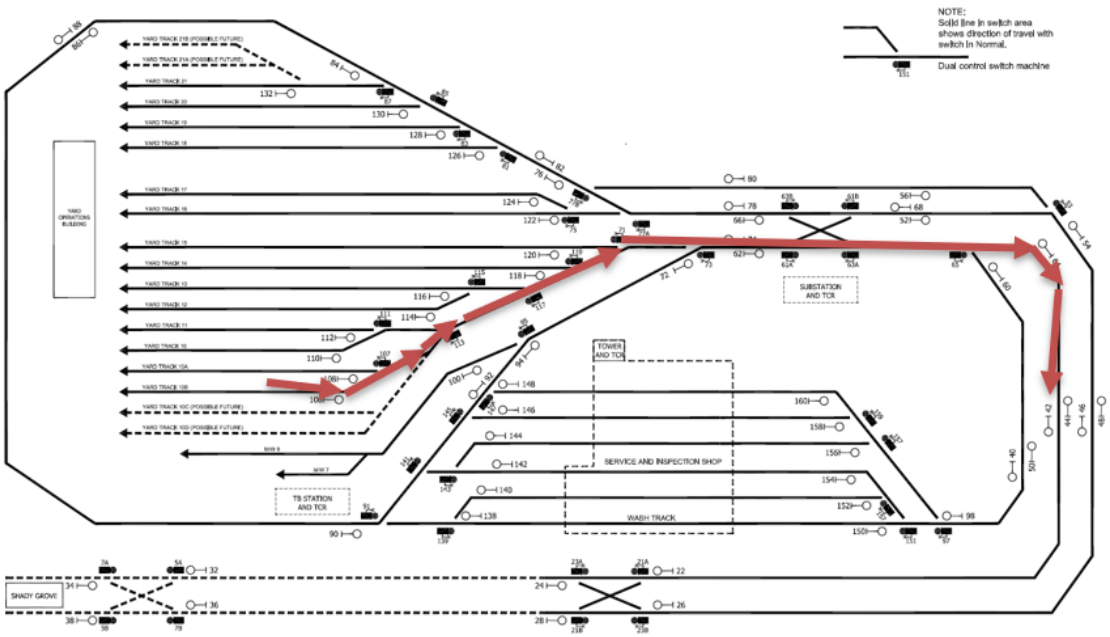


Figure 2 - depicts the path taken by lead car 7159 moving from A99-106 to no closer than 10 feet to the A99-46 signal, displaying a red aspect.

The above depiction is not to scale.

At 17:40 hours, the RVO advised the Interlocking Operator that they were keyed down and reversed end at signal A99-64, which displayed a red aspect. The Interlocking Operator provided a lunar signal and granted the RVO an absolute block, no closer than 10 feet of signal A99-86, which displayed a red aspect (see Figure 3). The RVO was instructed to reverse ends behind signal A99-90 with a "deuce."[1]

[1] Deuce, also known as a "Married Pair." The Metrorail Operating Rulebook (MOR) defines a Married Pair as two (2) transit cars, an "A" car, and a "B" car, which are semi-permanently coupled to each other and share certain common equipment.

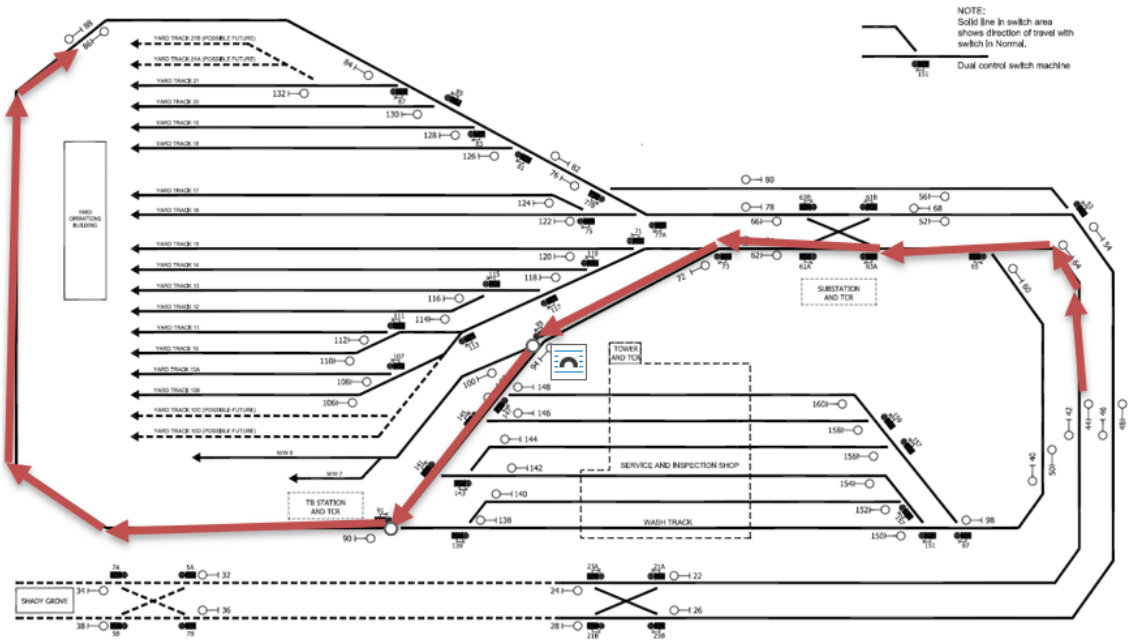


Figure 3 - depicts the path taken by lead car 7158 moving from A99-64 to no closer than 10 feet to the A99-86 signal displaying a red aspect.

The above depiction is not to scale.

At 17:46, the RVO informed the Interlocking Operator that they were standing by, keyed down, and reversed ends towards signal A99-90. At this time, the Interlocking Operator instructed the RVO to verify that signal A99-90 was lunar. Then, the interlocking operator instructed the RVO to proceed to 8 South to retrieve two (2) cars to add to the consist, with barriers (see Figure 4).

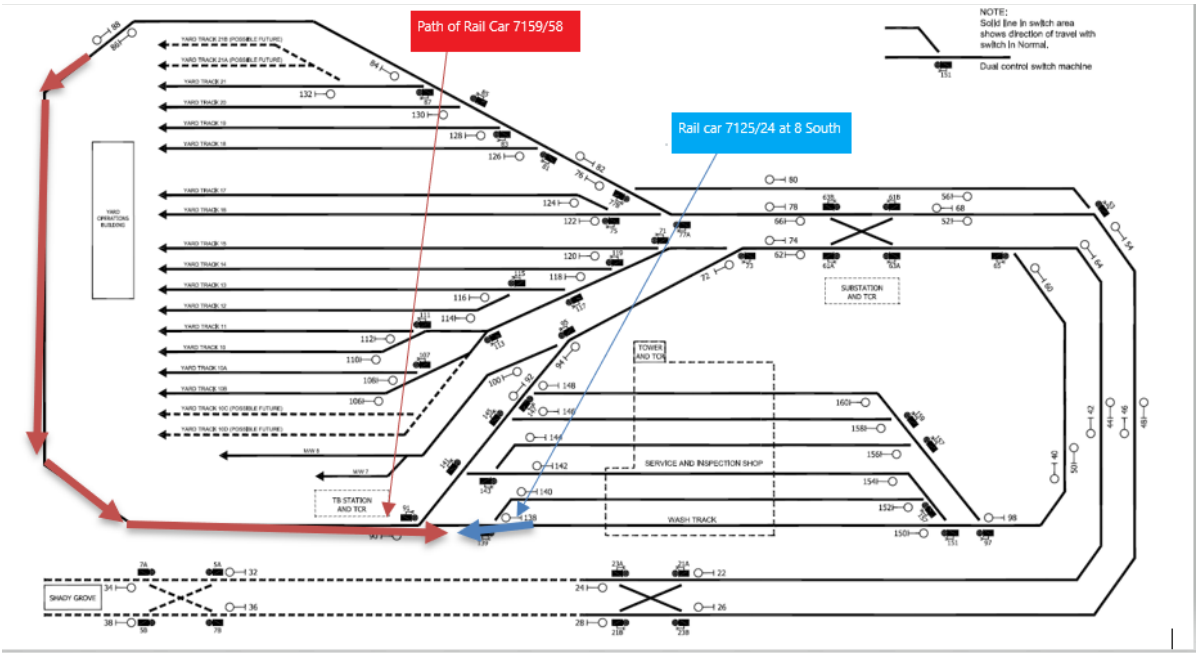


Figure 4 depicts a lead rail car 7159 traveling from A99-86 to 8 South, adding rail cars 7125/24 to the consist at 17:46 hours.

The above depiction is not to scale.

At 17:54 hours, the RVO informed the Interlocking Operator that they successfully added the two additional rail cars. The Interlocking Operator acknowledged the add and instructed the RVO to

verify their alignments, travel no more than 3 MPH over the interlocking switches, and granted an absolute block, of no closer than 10 feet of A99-86 signal which displayed a red aspect. The RVO was instructed to reverse ends behind the signal A99-90 with the four rail cars.

At 17:58 hours, the Interlocking Operator contacted the RVO, informing them that they had cleared the signal A99-90 and instructed them to key down. The RVO did not respond to the transmission and continued past the A99-86 signal, displaying a red aspect, traveling at 9 MPH (see Figure 5). The RVO then keyed down and began to reverse ends.

At 17:59 hours, the Interlocking Operator asked the RVO if they had passed the A99-86 signal. The RVO was unsure that the signal was passed and was instructed to confirm by the Interlocking Operator. At 18:00 hours, the RVO confirmed that they had overran the red signal by one-half car length. The RVO was instructed to exit the rail car and proceed to the administrative building. Signal A99-86 is a holding signal with no Trailing Point Switch.[2]

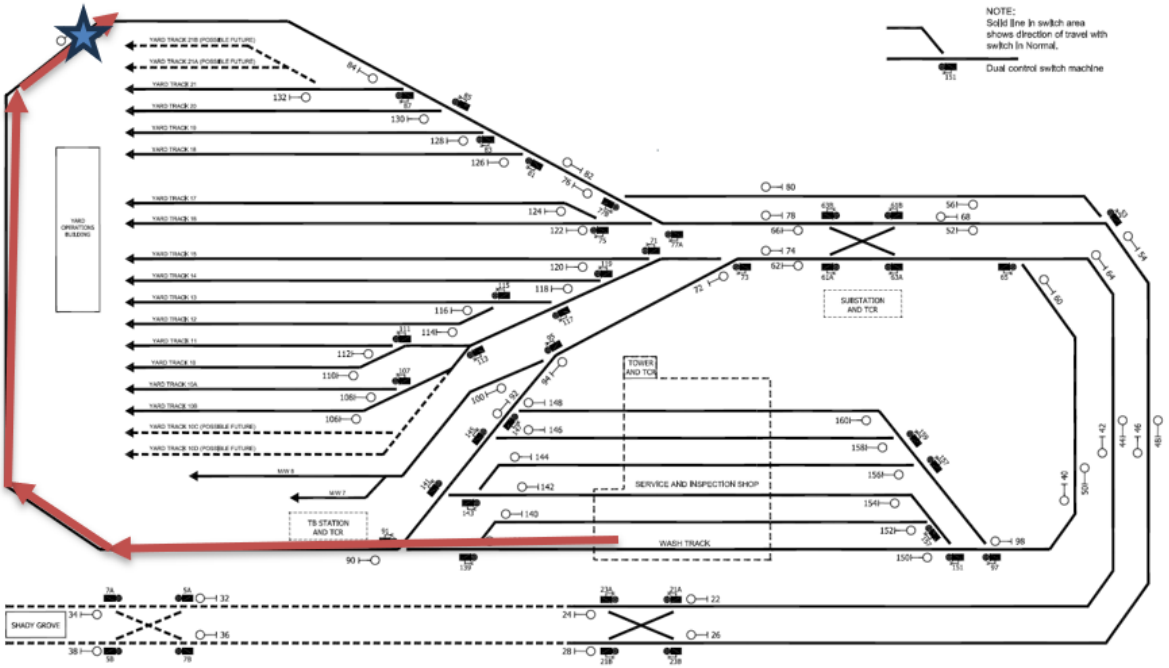


Figure 5 - depicts rail car 7158/59X7125/24 traveling from 8 South past A99-86 Signal displaying a red aspect.

The above depiction is not to scale.

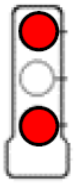
Signal Name	Signal Indication	Signal Aspect
Stop Signal	Stop.	

Figure 6 - MOR Signal Aspect Indication of a Stop Signal

[2] The MOR defines a Trailing Point Switch as a switch, over which trains must make a trailing movement for the route to be established.

Figure 7 - depicts the railcar with lead car 7158 bypassing the A99-86 signal, displaying a red aspect by more than one (1) car length.

The Interlocking Operator notified the MICC Rail Section and ATCM Desk of the incident. Shady Grove Division Management was notified, and they instructed that the Interlocking Operator and RVO be removed from service.

At 18:57 hours, an RTRA Supervisor was dispatched to Shady Grove Tower to relieve the Interlocking Operator. At 19:10 hours, personnel from Safety Investigations, ERT, and ATCM were standing by at signal A99-86 and requested permission to enter the roadway.

At 19:26 hours, personnel from the CMOR IIT arrived at the incident location. At 19:27 hours, the Interlocking Operator was relieved of their duty and escorted to post-incident testing. At 19:54 hours, a replacement RVO was instructed to move the consist to track 12.

At 19:56 hours, ERT, ATCM, and Safety Investigations personnel performed a track inspection from signal A99-86 along the outer loop of the yard. ERT and ATCM reported no damage was found to the signal or track. At 20:03 hours all personnel were clear of the roadway.

An inspection of the train's consist revealed no defects that may have contributed to the red signal overrun. Subsequent interviews were conducted with the RVO, and it was discovered that although the RVO understood their instructions fully, they ultimately bypassed the red signal. An interview of the Interlocking Operator by the RTRA Manager revealed that they began updating their RPM records before the completion of the move. Both the RVO and the Interlocking Operator were sent for refresher training. A Lessons Learned Memorandum regarding this incident was distributed to division personnel.

Chronological Event Timeline

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

Time	Description
17:35:48 hours	Interlocking Operator: Asked the RVO if their lead car was 7159. RVO: Acknowledged their lead car was 7159. Interlocking Operator: Instructed the RVO once they have verified that A99-106 Signal was lunar, they are granted an absolute block, no closer than 10 feet, to A99-42 Signal Red and berth behind A99-64 signal. RVO: Acknowledged the instructions with 100% repeat back. [SGYD 2 Radio]
17:40:46 hours	RVO: Informed the Interlocking Operator that they were standing by A99-64 Signal Red Interlocking Operator: Informed the RVO that the A99-64 signal was now lunar. The RVO granted an absolute block, no closer than 10 feet, to A99-86 Signal Red. At that location, they were to reverse ends behind the A99-90 signal with a two-car consist (Deuce) RVO: Acknowledged the instructions with 100% repeat back Interlocking Operator: Acknowledged the repeat back. [SGYD 2 Radio]
17:46:56 hours	RVO: Informed the Interlocking Operator that they were standing by the A99-90 Signal, keyed down and reversed. Interlocking Operator: Instructed the RVO once they have verified that A99-90 Signal was lunar, they are granted an absolute block to 8 South use yard procedure safety stops using caution and add two cars with barriers to the consist, coming out with four cars. RVO: Acknowledged the instructions and repeated once they had verified A99-90 signal lunar signals, they had an absolute block 8 South [inaudible] safety stops, coming out with four (4) after making an add. Interlocking Operator: Acknowledged the repeat back. [SGYD 2 Radio]
17:54:44 hours	RVO: Informed the Interlocking Operator that they were standing by with four cars added successfully. Interlocking Operator: Acknowledged railcar 7159 added to railcar 7125. Train line for an installed barrier. Once they have verified their rail alignments, speed no greater than three (3) [MPH] over switches. Absolute block no closer than 10 feet of A99-86 signal red. Reverse ends behind A99-90 signal with four cars. RVO: Asked the Interlocking Operator which signal was in front of them Interlocking Operator: Stated the RVO had an absolute block from their location. They were to verify their alignments and was granted an absolute block no closer than 10 feet of A99-86 signal red, then reverse end behind A99-90 signal. RVO: Acknowledged the message and repeated from their location they had lunar rail readouts, speed no greater than 3 MPH over clamped switches. Absolute block, no closer than 10 feet of A-99-86 Signal Red. Key down and reverse behind A99-90. Interlocking Operator: Acknowledged the repeat back. [SGYD 2 Radio]

Time	Description
17:58:24 hours	Interlocking Operator: Informed the RVO that they were clear of the signal and instructed them to key down. [SGYD 2 Radio]
17:59:08 hours	Interlocking Operator: Asked the RVO if they passed the A99-86 signal. RVO: stated that they believed they passed the signal. They asked if the Interlocking Operator wanted them to stand by or proceed. [SGYD 2 Radio]
18:02:42 hours	Interlocking Operator: Asked the RVO again if they passed the A99-86 signal red. RVO stated that they were no longer at that end of the train and were not 100% certain that they had passed the signal. Interlocking Operator: instructed the RVO to go and verify if the A99-86 signal displaying a red aspect was passed. RVO: Acknowledged the instructions. RVO: stated that they had passed the signal by half a car. Interlocking Operator: instructed the RVO not to move the train and make their way to the Administrative Building
18:04:43 hours	Interlocking Operator: Contacted the OPS 1 Button RTC to inform them of a Red Signal Overrun. The incident occurred at the A99-86 signal. No switches were trailed, and the incident occurred at a holding signal. Button RTC: Acknowledged the message and requested the Time of occurrence, the RVO's information, and instructed the Interlocking Operator to contact ATCM. [OPS 1 Phone]
18:07:06 hours	Interlocking Operator: Contacted the Power Desk to report a Red Signal Overrun at the A99-86 signal and informed them that the incident occurred at a holding signal. Power Desk: Instructed the Interlocking Operator to call a different extension to speak to the ATC Desk. [A99 Tower Phone]
18:08:34 hours	Interlocking Operator: Contacted the ATC Desk to report a Red Signal Overrun at A99-86 signal. ATC Desk: Informed the Interlocking Operator that they would send someone out to inspect the signal. Interlocking Operator: Informed the ATC Desk that there were no switches at the signal. The incident occurred behind the administrative building. ATC Desk: Informed the Interlocking Operator that they would send someone out to inspect the signal. [A99 Tower Phone]
18:09:05 hours	Interlocking Operator: Contacted the Shady Grove Terminal Supervisor to report the incident. Shady Grove Terminal Supervisor: Acknowledged the message and stated they would send a supervisor to that location. [A99 Tower Phone]

Time	Description
18:18:53 hours	Assistant Operation Manager (AOM): Contacted the Interlocking Operator for a statement. Interlocking Operator: Stated that the RVO added up a consist at 8 South. They then gave the RVO permission to travel no closer than 10 feet of A99-86 signal "Red", key down, and reverse end behind A99-90 signal then proceed through the car wash. They observed that the RVO was clear, they then looked at the panel which showed the RVO had passed A99-86 signal, "Red". They then asked the RVO if they had passed the A99-86 signal, and they responded that they were walking through the consist and were not sure. The Interlocking Operator instructed them to verify if they had passed the A99-86 signal. The RVO then confirmed that they had overran the signal by half a car. AOM: Verified the information with 100% repeat back. [Rail 2 Assistant Phone]
18:19:00 hours	AOM: Contacted the Shady Grove Division Assistant Superintendent to report the incident and inquired if both the RVO and the Interlocking Operator were being removed from service. [Rail 2 Assistant Phone]
18:22:35 hours	SIO: Informed the AOM that the scene was released at 18:22 hours. [Rail 2 Assistant Phone]
18:23:24 hours	Shady Grove Division Assistant Superintendent: Informed the AOM that both the RVO and the Interlocking Operator were being removed from service. AOM: Inquired who would be relieving the Interlocking Operator. [Rail 2 Assistant Phone]
18:31:50 hours	Shady Grove Division Assistant Superintendent: Arranged for an RTRA Supervisor qualified as an Interlocking Operator to report to Shady Grove Yard and an additional RTRA Supervisor to remove the Interlocking Operator for post-incident testing. AOM: Acknowledged the message and informed the Assistant Superintendent that SAFETY had released the scene at 18:22 hours, and the train could be moved once the relief Interlocking Operator arrived and verified that no switches were involved in the incident. [Rail 2 Assistant Phone]
19:10:15 hours	ERT Supervisor: Informed the Interlocking Operator that they were standing by at the A99-86 signal with SAFE, ATCM, and ERT. They requested permission to enter the roadway. Interlocking Operator: Informed the ERT Supervisor that permission was granted once a safety briefing was held and reminded them that the third rail was hot and energized and to notify the tower once all personnel have cleared the roadway. ERT Supervisor: Acknowledged message and informed the Interlocking Operator that they would contact the tower when all personnel had cleared the roadway. [SG YD2 Radio]
19:26:04 hours	CMOR IIT: Informed the Interlocking Operator that they were at the A99-86 signal and requested permission to enter the roadway to perform an inspection of the train involved in the red signal overrun. Interlocking Operator: Informed the CMOR IIT Technician that permission was granted once a safety briefing was held and to notify the tower once all personnel had cleared the roadway. [SG YD2 Radio]
19:27:09 hours	The RTRA Supervisor arrived at Shady Grove Yard Tower to relieve the Interlocking Operator of their duties [Yard A99 MIC]

Time	Description
19:30:18 hours	ERT Supervisor: Requested a status for the train being moved to perform a secondary track inspection. RTRA Supervisor: Radioed for SAFE to release the scene. ERT Supervisor: Advised the RTRA Supervisor that SAFE was standing by at their location and released the scene. RTRA Supervisor: Radioed for an RVO to move the train toward the A99-84 signal. [SG YD2 Radio]
19:36:36 hours	ERT Supervisor: Informed the RTRA Supervisor that all personnel were clear of the roadway and that the train could be moved from the location. Once the train had cleared, they requested to re-enter the roadway to conduct a track inspection. RTRA Supervisor: Instructed the ERT Supervisor to stand by and stand clear Replacement RVO: Informed the RTRA Supervisor that they were on the train Lead car 7158. RTRA Supervisor: Instructed the Replacement RVO to stand by [SG YD2 Radio]
19:46:49 hours	RTRA Supervisor: Radioed for the CMOR IIT Investigator ERT Supervisor: Informed the RTRA Supervisor that the CMOR IIT Investigator was standing by clear of the roadway. [SG YD2 Radio]
19:54:11 hours	RTRA Supervisor: Instructed the Replacement RVO to move the train northbound, verify the lunar signal at A99-84, and was granted an absolute block of no closer than 10 feet of A99-46 Signal “Red.” They were to then key down and reverse ends. Replacement RVO: Acknowledged the message with 100% repeat back. [SG YD2 Radio]
19:56:52 hours	ERT Supervisor: Requested permission to enter the roadway to perform a track inspection from the A99-86 signal around the loop with SAFE, ATCM, and ERT personnel. RTRA Supervisor: Granted permission and reminded the ERT Supervisor that the third rail was hot and energized. [SG YD2 Radio]
19:59:51 hours	Replacement RVO: Informed the RTRA Supervisor that they were standing by the A99-54 signal. RTRA Supervisor: Instructed the Replacement RVO to verify their lunar signal and to proceed to track 12, making all safety stops no closer than two (2) feet from the bump post. [SG YD2 Radio]
20:03:29 hours	ERT Supervisor: Informed the RTRA Supervisor that all personnel were clear of the roadway. [SG YD2 Radio]
20:05:10 hours	Replacement RVO: Informed the RTRA Supervisor that the four (4) cars were on track 12 no closer than two (2) feet of the bump post. [SG YD2 Radio]
20:10:25 hours	ERT Supervisor: Requested the RTRA Supervisor set the lead at A99-86 Signal for ATCM to confirm holding signal A99-89 was operating as designed. No issue was observed. ERT and ATCM had concluded their inspections. [SG YD2 Radio]

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

Closed-Circuit Television (CCTV)

Figure 8 - Railcar 7158 front-facing camera of approach to A99-86 Signal

Figure 9 - Railcar 7158 interior cab facing camera depicting the railcar passing A99-86 Signal

The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)

Adopted from CMOR IIT report with minor formatting and grammatical edits:

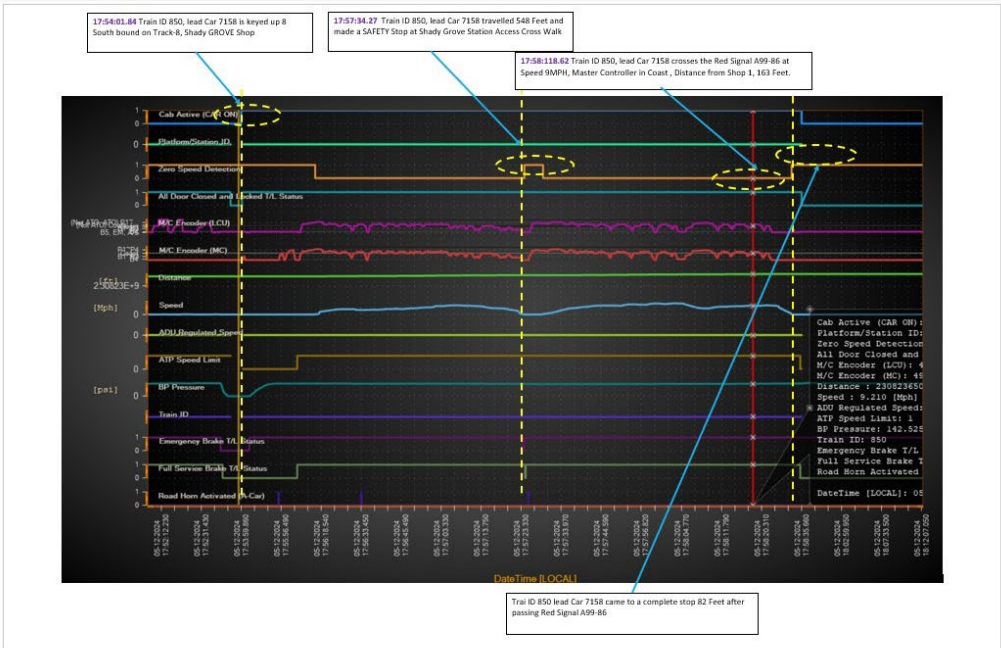
IIT completed its analysis of the incident. On 05/12/24 at 17:54:01 hours, Train ID 850, lead Car 7158, keyed up on Track 8, southbound, at Shady Grove Yard Shop. Stop and Proceed Mode was initiated as the train moved under Stop and Proceed Mode, traveling up to a maximum speed of 11MPH. The train made one (1) safety stop 548 feet away from the Shop.

Train ID 850 traveled 1,163 feet and passed the A99-86 Signal, displaying a red aspect, traveling 9MPH with the Master Controller in the "Coast" position. The train came to a complete stop 82 feet beyond the A99-86 Signal, displaying a red aspect.

Time	Description
17:54:01:84 hours	Train ID 850, lead Car 7158, is keyed up on 8 South, Track 8 in the Shady Grove Shop.
17:54:01:90 hours	Door is closed as the All Door Closed and Locked signal goes "High", indicating All Door Closed.
17:55:55:53 hours	Road horn activated
17:56:11:12 hours	Stop & proceed initiated.
17:56:16:87 hours	Master Controller cycled to the "P1-P4" Power position, and Train ID 850, Lead Car 7158, began moving on Track 8 southbound, traveling 1MPH.
17:56:26:99 hours	Master Controller was placed in the "Coast" position, traveling up to 8MPH, 71 feet from the Shop on Track 8 under Stop and Proceed.
17:56:33:47 hours	Road Horn activated
17:57:34:27 hours	Train ID 850, lead Car 7158, traveled 548 feet and made a Safety Stop at the Shady Grove Yard Access Cross Walk.
17:57:31:06 hours	Master Controller was placed in the "P1-P4" power position, and Train ID 850, lead Car 7158, began moving towards signal A99-86 in the Loop towards the Admin Building, traveling 1MPH.
17:58:18:62 hours	Train ID 850, lead Car 7158, crossed the A99-86 Signal Red at Speed 9MPH. The Master Controller was in the "Coast" position. 1,163 feet from the Shop. Incident Video was synchronized
17:58:27:68 hours	Train ID 850 lead Car 7158 came to a complete stop 82 feet beyond A99-86 Signal Red
17:58:36:00 hours	Lead Car 7158 is keyed down.

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

Lead Car 7158 Analysis Graph



Automatic Train Control Engineering (ATCE)

SAFE requested an Oracle Report from the ATCE department. Using data retrieved from Shady Grove Yard (A99) Safetran Sear II Event Recorder for May 12, 2024, from 00:00:00 hours to 23:59:59 hours. The following information was obtained regarding this event.

Their data shows that the railcar left the 8 South shop to the path of Track Circuit 91T, Track Circuit 88T, signal 86, Track Circuit 82T, and Track Circuit 85T. At 18:01:26:00 Real Time Clock (RTC), the train passed signal 86, displaying a stop status without stopping and waiting for a lunar signal.

Office of Rail Transportation (RTRA)
Adopted from RTRA Supervisors report:

"At 18:57 hours, an RTRA Supervisor was dispatched to Shady Grove Tower to relieve the Interlocking Operator for post-incident testing and to assume command of the Shady Grove Tower. The RTRA Supervisor arrived on location at 19:30 hours, and a separate RTRA Supervisor escorted the Interlocking Operator for post-incident testing.

At 19:54 hours, a replacement RVO was instructed to move the incident train, securing it on track 12, no closer than two (2) feet of the bump post.

At 19:58, ERT, SAFE, and ATCM performed a track inspection from the A99-86 signal along the outer loop. ERT and ATCM reported no damage. At 20:04, all personnel and equipment were clear of the roadway."

Adopted from RTRA Managerial Incident Investigation report:

Interlocking Operator contacted the RVO to couple car 7125 to 7159 in the shop on 8 South. After the coupling was made, the Interlocking Operator instructed the RVO that after verifying their alignment, they should move no greater than three (3) MPH over switches and was granted an

absolute block of no closer than 10 feet of A99-86 signal displaying a red aspect, clearing A99-90 signal and to reverse ends. After a period of time, the Interlocking Operator radioed to the RVO to inform them that they had cleared the A99-90 signal and to reverse ends.

The Interlocking Operator asked the RVO if they had passed the A99-86 signal, to which the RVO responded that they were not sure. The RVO walked back to the lead car and verified that they did pass the signal. Both employees were removed from service and transported for post-incident testing. All appropriate departments, including division management, were notified.

Key Employees Involved & Employee Statements

RVO stated that they were working in the Shady Grove yard at the time and date of the incident. They were instructed by the Interlocking Operator to key down and reverse ends at the A99-86 signal displaying a red aspect. They fully comprehended the instructions. Upon their approach to the A99-86 signal, the Interlocking Operator radioed to inform them that they were clear of the signal and to key down and reverse ends. The RVO keyed down and reversed ends. Moments later, the Interlocking Operator asked the RVO if they passed the A99-86 signal. The RVO walked back to verify and confirmed that they had passed the signal. The Interlocking Operator instructed them to exit the train and wait in the admin building.

The Interlocking Operator stated that after making an addition (add) in 8 South, they granted the RVO an absolute block of no closer than 10 feet of the A99-86 signal, displaying a red aspect, key down, and reverse ends behind the A99-90 signal. After the Interlocking Operator updated RPM, they informed the RVO that they were clear. When they looked at their panel, they observed the signal past A99-86 was occupied. They then asked the RVO if they had passed the A99-86 signal, displaying a red aspect. The RVO stated that they were not sure. The Interlocking Operator instructed them to verify. The RVO stated that half of their lead car was past the A99-86 signal, which displayed a red aspect. The Interlocking Operator contacted the MICC at 18:05 hours, ATCM at 18:07 hours, and the Shady Grove Terminal Supervisor at 18:09 hours. ATCM, ERT, and SAFE arrived at the location at 19:11 hours. IIT arrived on location at 19:28 hours.

Significant Findings & Pending Issues
The Interlocking Operator's report revealed that they were updating the RPM and giving instructions simultaneously.

Conclusion
Both the RVO and Interlocking Operator were sent for refresher training. A yard Red Signal Overrun Lessons Learned was distributed to division personnel.

Interview Findings
As part of the investigation into the event, SAFE interviewed two (2) people. The interview identified the following key findings associated with this event. The findings detailed below include reported information from involved personnel and may conflict with other data sources contained in the report.

RVO

- Stated they were given clear instructions to proceed no closer than 10 feet of A99-86 Signal "Red."
- Stated they were unaware that they had overrun the signal.
- Stated they received sufficient Yard rotation training at Shady Grove; however, they would like to receive more.
- Worked at A99 Yard once a week as part of their weekly work assignment

Interlocking Operator

- Has worked A99 Yard for over two (2) years as an Interlocking Operator
- Stated their biggest challenge is working with inexperienced staff and getting additional experienced staff to assist, especially during peak service.

Weather

On May 12, 2024, at the time of the incident, NOAA recorded the temperature as 62.6°F, with clear skies, winds of 5 mph, and 55.41% humidity. [Rockville, MD]. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Rockville, MD.

Related Rules and Procedures

Metrorail Operating Rulebook (MOR)
1.1 Guiding Safety Principles
1.1.3 Employees shall not permit unnecessary conversation, reading, lounging, or any other action or condition of mind to divert their attention from the safe performance of their duty.
3.3 Signals Requiring a Stop
Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

Human Factors

RVO
Evidence of Fatigue

SAFE evaluated conditions during the incident to distinguish whether evidence of fatigue was present. No signs or symptoms of fatigue were detected from the available data. Video of the incident was reviewed for signs of the RVO's fatigue. No signs or symptoms of fatigue were evident from the video. The RVO reported feeling fully alert at the time of the incident. The employee reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

SAFE evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The RVO reported keeping a regular sleep schedule on the days leading up to the incident. The employee worked PM shifts in the days leading up to the incident. The employee was awake for 8 hours at the time of the incident The employee reported 8 hours of sleep in the 24 hours preceding the incident. The off-duty period was 15.25 hours, which provided an opportunity for 7-9 hours of sleep. This was a comparable amount to the employee's usual workday sleep durations. The employee reported no issues with sleep. The employee worked PM shifts in the days leading up to the incident.

Interlocking Operator
Evidence of Fatigue

SAFE evaluated conditions during the incident to distinguish whether evidence of fatigue was present. No video of the involved person was available to ascertain whether signs of fatigue were

present. The Interlocking operator reported feeling fully alert at the time of the incident. The employee reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

SAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident time of day did not suggest an increased risk of fatigue-related impairment. The Interlocking Operator reported some variation in the sleep schedule in the days leading up to the incident. The employee worked AM shifts in the days leading up to the incident. The employee was awake for 10 hours at the time of the incident The employee reported 11 hours of sleep in the 24 hours preceding the incident. The off-duty period was 22 hours, which provided an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The employee reported no issues with sleep. The employee worked AM shifts in the days leading up to the incident.

Post-Incident Toxicology Testing

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

Interlocking Operator
WMATA's Drug and Alcohol Program determined that the RVO complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Findings

- The RVO acknowledged the instructions from the Interlocking Operator with 100% repeat back.
- There were no issues with the train that contributed to the Red Signal Overrun.
- There was no switch associated with signal A99-86.

Immediate Mitigation to Prevent Recurrence

- The RVO was removed from service for post-incident testing.
- The Interlocking Operator was removed from service for post-incident testing.
- RTRA Management reissued a Red Signal Overrun Lessons Learned, which was distributed to division staff, while a new Lessons Learned was created for this event.

Probable Cause Statement

The probable cause of the Red Signal Overrun event at Shady Grove Yard on May 12, 2024, was inattentiveness on behalf of the RVO. Specifically, the RVO acknowledged the instructions given by the Interlocking operator and was aware that signal A99-86 was red prior to moving the train.

Contributing to this incident was complacency on behalf of the Interlocking Operator. Specifically, the Interlocking Operator failed to monitor the move to its completion and began updating their RPM records.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
116838_SAFECAPS_RTRA_001	(RC-1) Office of Rail Transportation - will ensure a Lessons Learned regarding this incident is developed and distributed to all RTRA personnel.	RTRA SRC	Completed
116838_SAFECAPS_RTRA_002	(RC-2) Office of Rail Transportation - will ensure the Interlocking Operator is sent for refresher training.	RTRA Asst Supt	Completed
116838_SAFECAPS_RTRA_003	(RC-3) Office of Rail Transportation - will ensure the RVO is sent for refresher training.	RTRA Asst Supt	Completed

Appendices

Appendix A – Interview Summaries

The narratives below summarize the incident and represent the statements made by the involved individual. As such, times and details may conflict with the data contained in systems of record.

RTRA

RVO

The RVO is a WMATA employee with 1.25 years of service and 0.83 total years of experience as an RVO. The RVO holds a Roadway Worker Protection (RWP) Level 2 certification that expires in February 2025.

During the formal interview, the RVO stated that they had coupled a train consist at 8 South and was instructed by the Interlocking Operator to move the train to A99-86 Signal Red. The RVO stated that they did understand the instructions clearly. They stated the Interlocking Operator radioed and informed them that they had cleared the interlocking. The RVO keyed down and began walking towards the opposite end of the train when the Interlocking Operator asked if they passed the A99-86 signal. The RVO was unsure if they bypassed the signal and was instructed by the Interlocking Operator to confirm. The walked back towards the end they were most recently operating and confirmed that they did bypass the signal.

The RVO stated that they work the A99 Yard once a week as part of their weekly assignment. They stated that they are unfamiliar with all of the signals in the yard. When asked if they received adequate Yard rotation training at Shady Grove, the RVO stated that they did receive adequate training; however, they would like to receive additional training. The RVO stated that they wear prescription eyeglasses, which they had on during the incident. The RVO was asked if they had passed A99-86 Signal previously that day, and they stated that they had passed it in the opposite direction. The RVO stated that they were not distracted when the incident occurred.

Interlocking Operator

The Interlocking Operator is a WMATA employee with 22 years of service and 2.25 total years of experience as an Interlocking Operator. The Interlocking Operator holds a Roadway Worker Protection (RWP) Level 4 certification that expires in April 2025.

During the formal interview, the Interlocking Operator stated they held several positions at WMATA, including Bus Operator, Train Operator, and Station Manager. As an Interlocking Operator, their responsibilities include but are not limited to adding trains for revenue service, sending defective rail cars to the shop for service, sending railcars through the car wash, taking down or bringing back up third rail power, and reporting any maintenance issues to the appropriate departments. The Interlocking Operator stated that their main challenges are inexperienced yard personnel and getting additional experienced staff to assist.

The Interlocking Operator stated that they had previously worked with the RVO on several occasions during the last picked assignment ending in April 2024. They instructed the RVO to bring four railcars to no closer than 10 feet of A99-86 signal, key down and reverse ends behind A99-90 signal in order to take the consist to the car wash. They stated once they updated their RPM report, they informed the RVO that they were clear, but when they turned around to check their panel, they saw the RVO had passed A99-86 Signal “Red”. They asked the operator if they

did in fact pass the signal. The RVO, walking through the train, was unsure, so they instructed them to go back and verify. The RVO then went back and confirmed that the signal was passed by half a rail car. The Interlocking Operator then contacted the MICC Rail Section and ATCM to report the incident. The Interlocking Operator stated they did not set A99-86 Signal “Lunar” because between A99-90 and A99-86, there is enough space to hold eight (8) railcars. There were no other railcars located between A99-86 and A99-84 signal.

Appendix B – Ops Reports

RTRA Supervisor's Report

Washington Metropolitan Area Transit Authority
Rail Operations Supervisor Report

Incident Date	Incident Time	Location (Station/Division)	Track/Mezz Number
5-12-2024	6:57pm	Shady Grove Tower	SG-Loop Track

Type of Incident		
Rule Violation (SOP #)	Commendation (Yes/No)	Other
N/A	No	Tower Relief / Red-Signal Overrun A99-86

Equipment Involved in the Incident			
Train ID and Car Numbers	Escalator Number	Elevator (Platform/Street)	Room Number
7158-7125	N/A	N/A	N/A

Name	Employee Number	Division
[redacted]	[redacted]	Shady Grove
[redacted]	[redacted]	Shady Grove

Customer Involved Information	
Name	Address
N/A	N/A

Miscellaneous Information	
Customer Injury (Yes/No)	No
Employee/Contractor Injury (Yes/No)	No
Post Incident Transport (Yes/No)	Yes

Responding Personnel			
Department	Arrival Time	Unit/Engine/Ambulance/Badge Number	Contact Person
ERT	7:58pm	ERT # [redacted] w/ Gang of 4	N/A
ATC	7:58pm	ATC [redacted]	N/A
SAFE	7:58pm	Safe [redacted]	N/A
[redacted]		[redacted]	[redacted]

Page 1 of 2

Figure 10 - RTRA Supervisor Report, page 1 of 2

Washington Metropolitan Area Transit Authority
Rail Operations Supervisor Report

Please Provide a Chronological Account of the Incident

Approximately 6:57pm, MICC Unit [redacted] to respond to Shady Grove Tower to relieve Interlocking Operator [redacted] for post-Incident and take over operations of Shady Grove Tower. Supervisor [redacted] relieved Interlocking Operator [redacted] at 7:30pm and Supervisor [redacted] took Interlocking Operator [redacted] down for post-Incident.

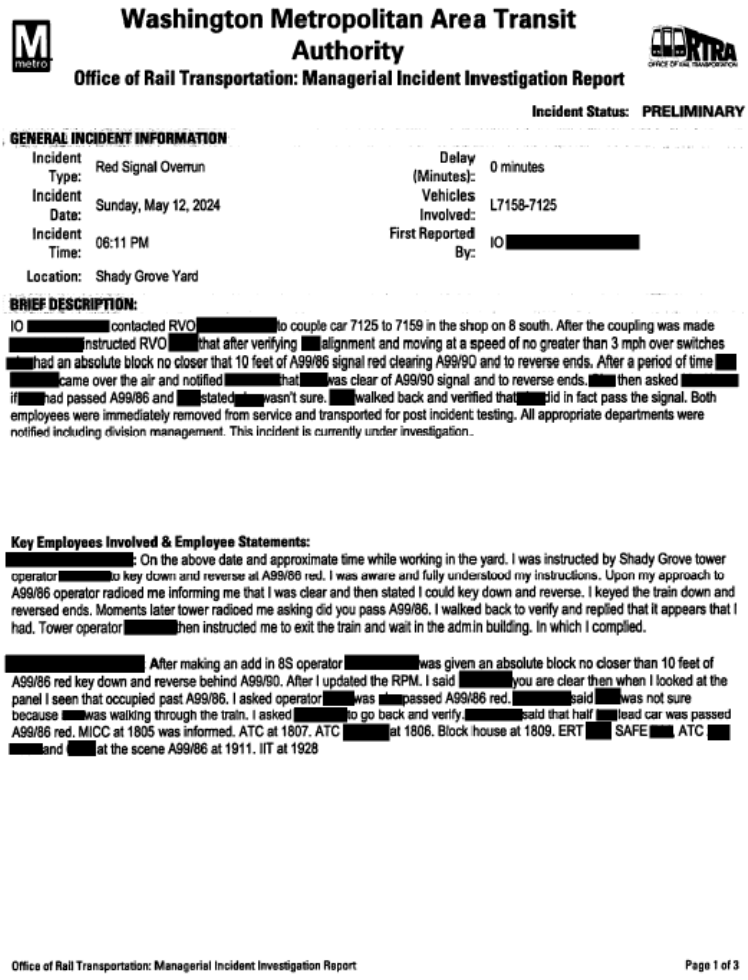
Approximately 7:54pm, Train Operator [redacted] was given instruction to move incident train north-bound, check alignment, verify A99-84 Lunar with absolute block 10-feet of A99-46 red and reverse-ends. Train Operator [redacted] was given instruction to verify A99-54 lunar, verifying all with absolute block to track #12, safety stops secure 2-feet from bumping post.

Approximately 7:58pm, ERT #[redacted] w/gang of 4, Safe #[redacted] and ATC #[redacted], #[redacted] #[redacted] performed a track inspection from A99-86 signal along the outer loop. ERT #[redacted] & ATC #[redacted] reported no damaged found from A99-86 signal & along the outer loop. ERT #[redacted] w/gang of 4, Safe #[redacted] and ATC #[redacted], #[redacted], #[redacted] all equipment & personnel cleared the roadway at 8:04pm.

Supervisor Name and Payroll	Signature	Date
[redacted]	[redacted]	5-12-2024
Reviewed By	**Signature**	**Date**
[redacted]	[redacted]	5/13/2024

Page 2 of 2

Figure 11 - RTRA Supervisor Report, page 2 of 2



Washington Metropolitan Area Transit Authority

Office of Rail Transportation: Managerial Incident Investigation Report

Incident Status: PRELIMINARY

GENERAL INCIDENT INFORMATION

Incident Type:	Red Signal Overrun	Delay (Minutes):	0 minutes
Incident Date:	Sunday, May 12, 2024	Vehicles Involved:	L7158-7125
Incident Time:	06:11 PM	First Reported By:	IO [redacted]
Location:	Shady Grove Yard		

BRIEF DESCRIPTION:

IO [redacted] contacted RVO [redacted] to couple car 7125 to 7159 in the shop on 8 south. After the coupling was made [redacted] instructed RVO [redacted] that after verifying [redacted] alignment and moving at a speed of no greater than 3 mph over switches [redacted] had an absolute block no closer that 10 feet of A99/86 signal red clearing A99/90 and to reverse ends. After a period of time [redacted] came over the air and notified [redacted] that [redacted] was clear of A99/90 signal and to reverse ends. [redacted] then asked [redacted] if [redacted] had passed A99/86 and [redacted] stated [redacted] wasn't sure. [redacted] walked back and verified that [redacted] did in fact pass the signal. Both employees were immediately removed from service and transported for post incident testing. All appropriate departments were notified including division management. This incident is currently under investigation.

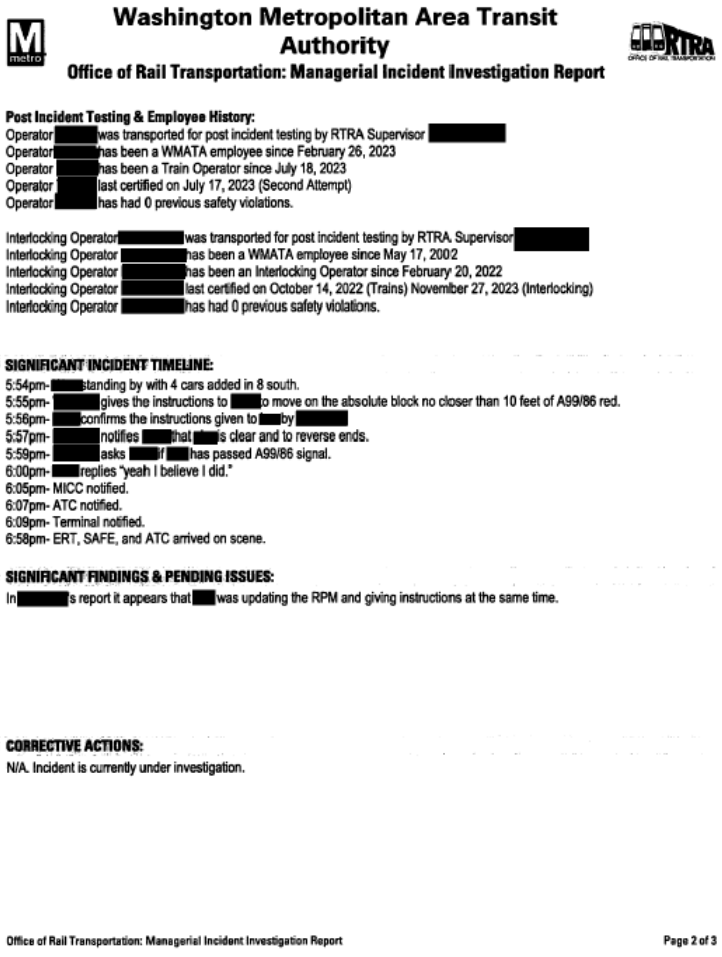
Key Employees Involved & Employee Statements:

[redacted]: On the above date and approximate time while working in the yard. I was instructed by Shady Grove tower operator [redacted] to key down and reverse at A99/86 red. I was aware and fully understood my instructions. Upon my approach to A99/86 operator radioed me informing me that I was clear and then stated I could key down and reverse. I keyed the train down and reversed ends. Moments later tower radioed me asking did you pass A99/86. I walked back to verify and replied that it appears that I had. Tower operator [redacted] then instructed me to exit the train and wait in the admin building. In which I complied.

[redacted] After making an add in 8S operator [redacted] was given an absolute block no closer than 10 feet of A99/86 red key down and reverse behind A99/90. After I updated the RPM. I said [redacted] you are clear then when I looked at the panel I seen that occupied past A99/86. I asked operator [redacted] was [redacted] passed A99/86 red. [redacted] said [redacted] was not sure because [redacted] was walking through the train. I asked [redacted] to go back and verify. [redacted] said that half [redacted] lead car was passed A99/86 red. MICC at 1805 was informed. ATC at 1807. ATC [redacted] at 1806. Block house at 1809. ERT [redacted] SAFE [redacted] ATC [redacted] and [redacted] at the scene A99/86 at 1911. IIT at 1928

Office of Rail Transportation: Managerial Incident Investigation Report Page 1 of 3

Figure 12 - RTRA Managerial Report, page 1 of 3



Washington Metropolitan Area Transit Authority

Office of Rail Transportation: Managerial Incident Investigation Report

Post Incident Testing & Employee History:

Operator [redacted] was transported for post incident testing by RTRA Supervisor [redacted]
Operator [redacted] has been a WMATA employee since February 26, 2023
Operator [redacted] has been a Train Operator since July 18, 2023
Operator [redacted] last certified on July 17, 2023 (Second Attempt)
Operator [redacted] has had 0 previous safety violations.

Interlocking Operator [redacted] was transported for post incident testing by RTRA Supervisor [redacted]
Interlocking Operator [redacted] has been a WMATA employee since May 17, 2002
Interlocking Operator [redacted] has been an Interlocking Operator since February 20, 2022
Interlocking Operator [redacted] last certified on October 14, 2022 (Trains) November 27, 2023 (Interlocking)
Interlocking Operator [redacted] has had 0 previous safety violations.

SIGNIFICANT INCIDENT TIMELINE:

5:54pm- [redacted] standing by with 4 cars added in 8 south.
5:55pm- [redacted] gives the instructions to [redacted] to move on the absolute block no closer than 10 feet of A99/86 red.
5:56pm- [redacted] confirms the instructions given to [redacted] by [redacted]
5:57pm- [redacted] notifies [redacted] that [redacted] is clear and to reverse ends.
5:59pm- [redacted] asks [redacted] if [redacted] has passed A99/86 signal.
6:00pm- [redacted] replies "yeah I believe I did."
6:05pm- MICC notified.
6:07pm- ATC notified.
6:09pm- Terminal notified.
6:58pm- ERT, SAFE, and ATC arrived on scene.

SIGNIFICANT FINDINGS & PENDING ISSUES:

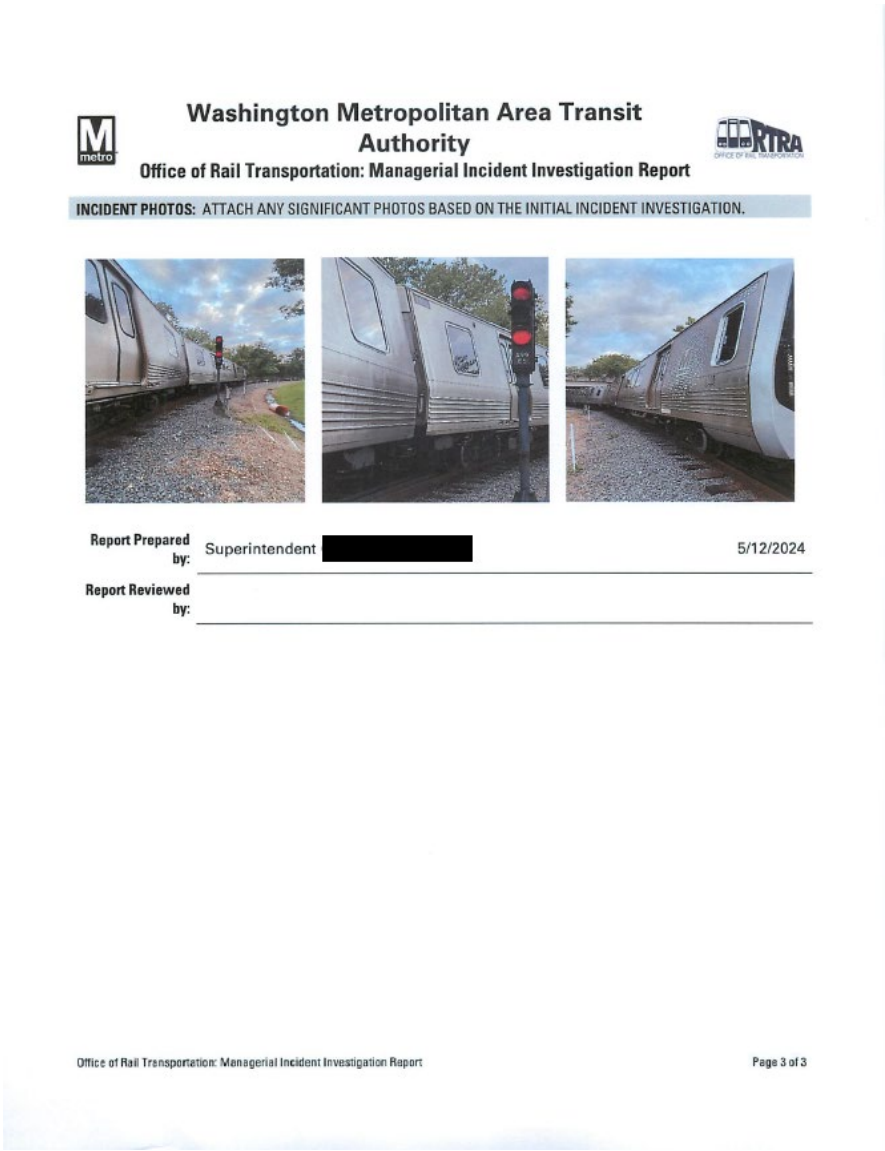
In [redacted]'s report it appears that [redacted] was updating the RPM and giving instructions at the same time.

CORRECTIVE ACTIONS:

N/A. Incident is currently under investigation.

Office of Rail Transportation: Managerial Incident Investigation Report Page 2 of 3

Figure 13 - RTRA Managerial Report, page 2 of 3



Washington Metropolitan Area Transit Authority

Office of Rail Transportation: Managerial Incident Investigation Report

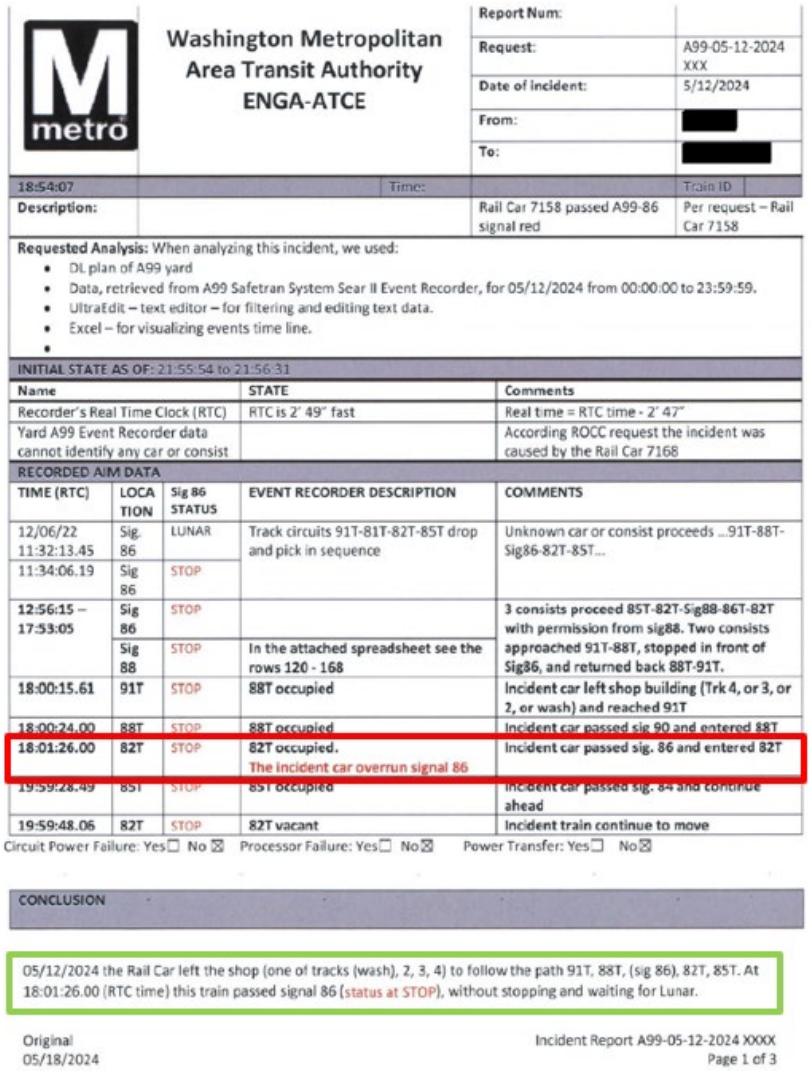
INCIDENT PHOTOS: ATTACH ANY SIGNIFICANT PHOTOS BASED ON THE INITIAL INCIDENT INVESTIGATION.

Report Prepared by: Superintendent [redacted] 5/12/2024

Report Reviewed by:

Office of Rail Transportation: Managerial Incident Investigation Report Page 3 of 3

Figure 14 - RTRA Managerial Report, page 3 of 3



Washington Metropolitan Area Transit Authority
ENGA-ATCE

Report Num:	
Request:	A99-05-12-2024 XXX
Date of Incident:	5/12/2024
From:	[redacted]
To:	[redacted]

18:54:07	Time:		Train ID
Description:		Rail Car 7158 passed A99-86 signal red	Per request – Rail Car 7158

Requested Analysis: When analyzing this incident, we used:

- DL plan of A99 yard
- Data, retrieved from A99 Safetran System Sear II Event Recorder, for 05/12/2024 from 00:00:00 to 23:59:59.
- UltraEdit – text editor – for filtering and editing text data.
- Excel – for visualizing events time line.
-

INITIAL STATE AS OF: 21:55:54 to 21:56:31

Name	STATE	Comments
Recorder's Real Time Clock (RTC)	RTC is 2' 49" fast	Real time = RTC time - 2' 47"
Yard A99 Event Recorder data cannot identify any car or consist		According ROCC request the incident was caused by the Rail Car 7168

RECORDED AIM DATA

TIME (RTC)	LOCATION	Sig 86 STATUS	EVENT RECORDER DESCRIPTION	COMMENTS
12/06/22 11:32:13.45	Sig. 86	LUNAR	Track circuits 91T-81T-82T-85T drop and pick in sequence	Unknown car or consist proceeds ...91T-88T-Sig86-82T-85T...
11:34:06.19	Sig 86	STOP		
12:56:15 – 17:53:05	Sig 86	STOP		3 consists proceed 85T-82T-Sig88-86T-82T with permission from sig88. Two consists approached 91T-88T, stopped in front of Sig86, and returned back 88T-91T.
	Sig 88	STOP	In the attached spreadsheet see the rows 120 - 168	
18:00:15.61	91T	STOP	88T occupied	Incident car left shop building (Trk 4, or 3, or 2, or wash) and reached 91T
18:00:24.00	88T	STOP	88T occupied	Incident car passed sig 90 and entered 88T
18:01:26.00	82T	STOP	82T occupied. The incident car overrun signal 86	Incident car passed sig. 86 and entered 82T
19:59:28.49	85T	STOP	85T occupied	Incident car passed sig. 84 and continue ahead
19:59:48.06	82T	STOP	82T vacant	Incident train continue to move

Circuit Power Failure: Yes☐ No☒ Processor Failure: Yes☐ No☒ Power Transfer: Yes☐ No☒

CONCLUSION

05/12/2024 the Rail Car left the shop (one of tracks (wash), 2, 3, 4) to follow the path 91T, 88T, (sig 86), 82T, 85T. At 18:01:26.00 (RTC time) this train passed signal 86 (status at STOP), without stopping and waiting for Lunar.

Original
05/18/2024

Incident Report A99-05-12-2024 XXXX
Page 1 of 3

Figure 15 - ENGA-ATCE Oracle Report, page 1 of 3

ATTACHMENTS:

1 - Request Form

2 - Double Line plan of incident area

3 - Original Event Recorder Capture

4 – Captured data after Preprocessing (removing irrelevant rows, reformatting for easy (copy-paste) transfer to Excel spreadsheet.

5 – Spreadsheet, visualizing the sequence of events.

All those attachments are embedded in this document.

The image of attachment 5 – visualization of moving cars and the play of signals 86 and 88 – is shown on additional page below.

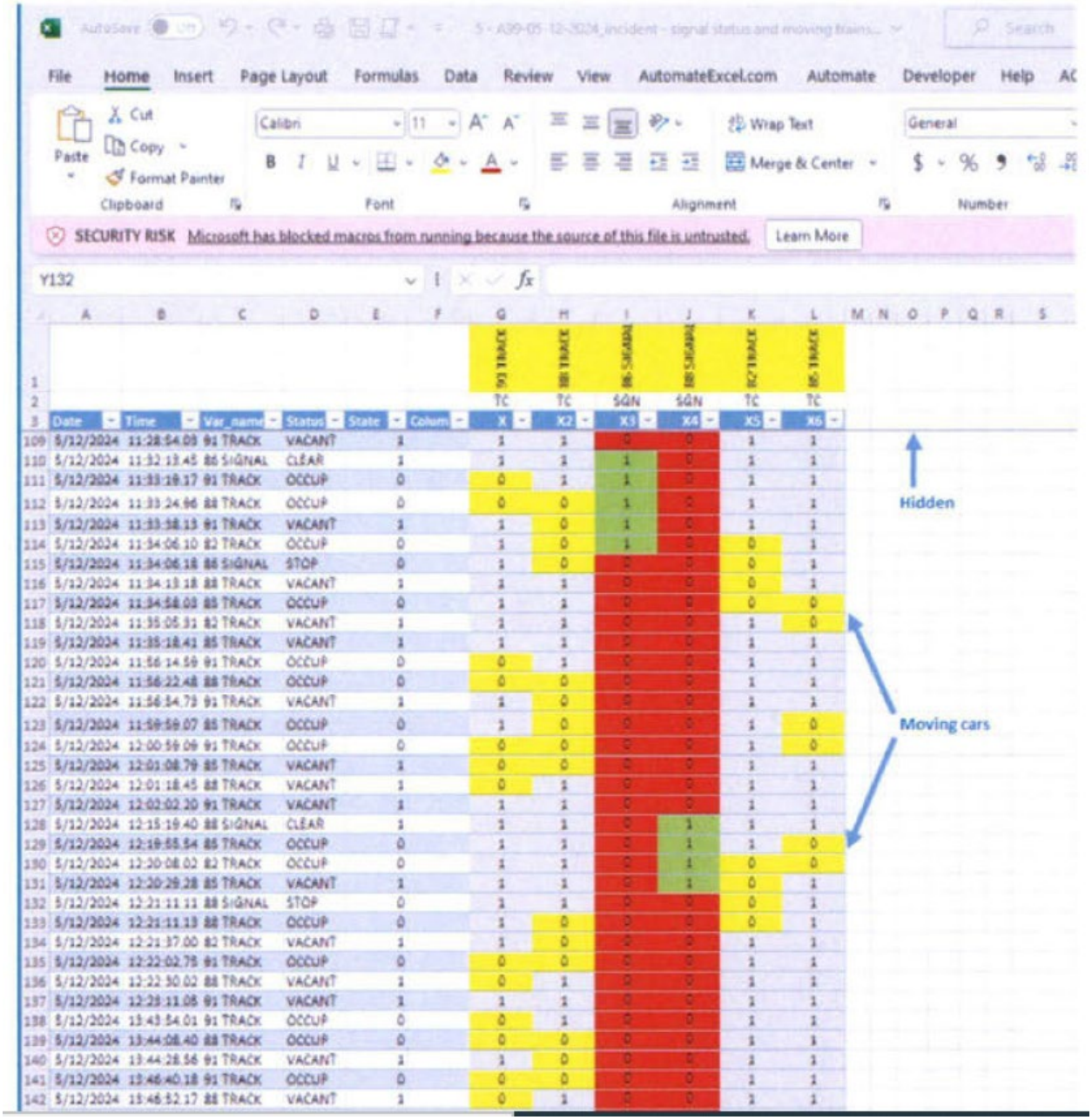
Distribution:

[redacted] | [redacted] XXXXXXXXXXX | [redacted]

Original
05/18/2024

Incident Report A99-05-12-2024 XXXX
Page 2 of 3

Figure 16 - ENGA-ATCE Oracle Report, page 2 of 3


Hidden
Moving cars

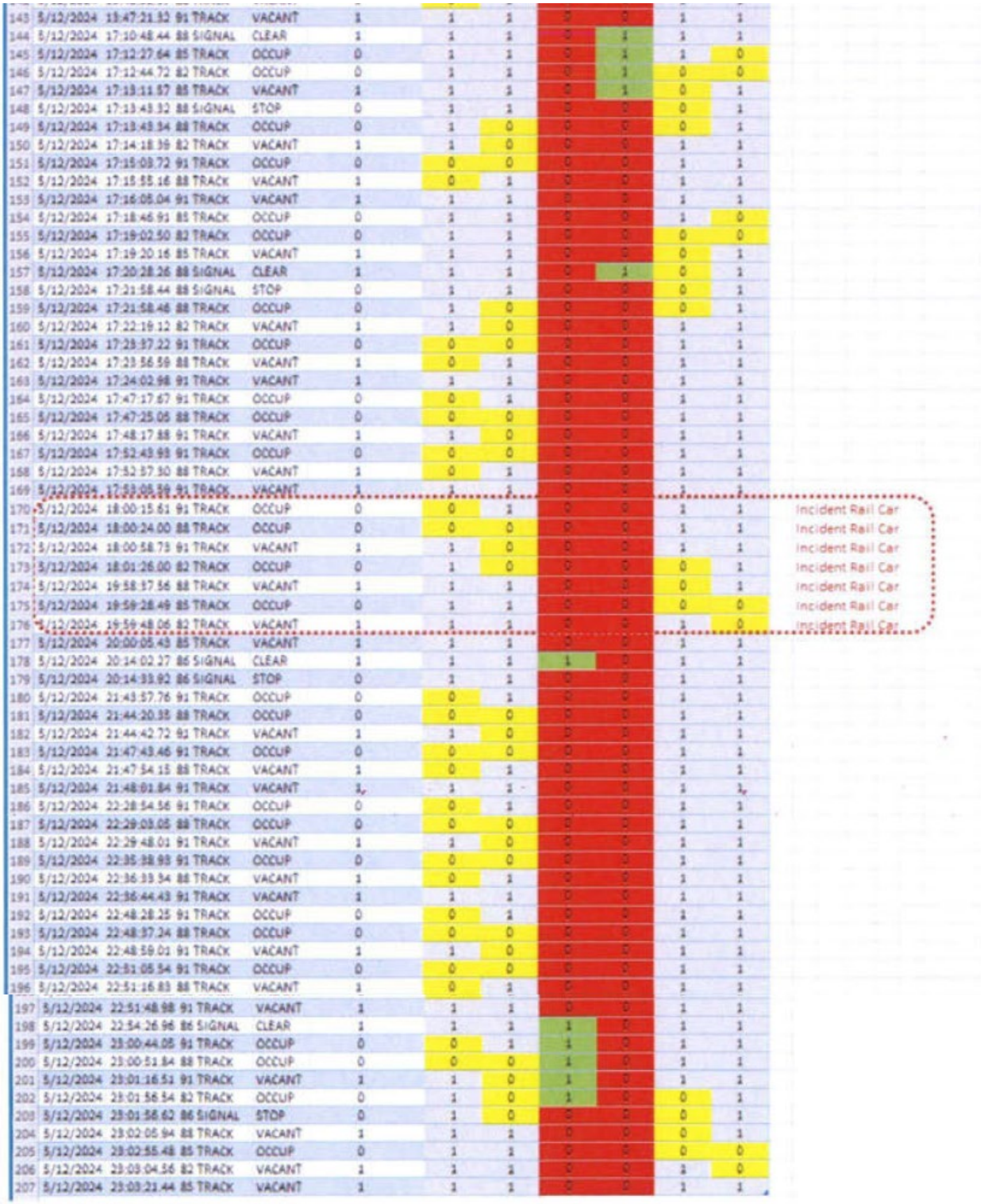


Figure 17 - ENGA-ATCE Oracle Report, page 3 of 3

Appendix C – Scene Photographs

Figure 18- depicts the train at the point of rest after the red signal overrun.

Figure 19 - depicts the remainder of the consist in the direction of the A99-90 signal.

Drafted By: SAFE 708 - 06/01/2024
Reviewed By: SAFE 704 06/27/2024
Approved By: SAFE 707 – 07/11/2024

Appendix D – Lessons Learned

Rail Transportation

Lessons Learned

Looking back, to effectively move forward

June 11, 2024
Number: RTRA-303-16-00

Red Signal Overrun in the Yard

INCIDENT SUMMARY

On Sunday, May 12, 2024, at 5:54 pm, the Interlocking Operator at Shady Grove Yard gave a Train Operator an absolute block no closer than 10 ft of A99-86 signal red, clearing A99-90 and to reverse ends. The Train Operator exceeded the absolute block, moving the consist past signal A99-86.

On Monday, May 13, 2024, at 1:18 am, the Interlocking Operator at Dulles Yard instructed a Train Operator to proceed to Track 11. The Operator was given an absolute block to N99-18 signal red and was instructed to hold at that location. The Train Operator failed to hold at the location, moving the consist past signal N99-18.

In both incidents, the Train Operators acknowledged and repeated their instructions.

ROOT CAUSE

There was a lack of situational awareness and focus by both Train Operators who failed to stop at the specified locations and did not follow established procedures.

MOR RULES INVOLVED / VIOLATED

3.3 Rail vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

3.4.2 If a rail vehicle runs through an improperly aligned track switch, the Rail Vehicle Operator shall stop the vehicle immediately, and report the occurrence to the Rail Traffic Controller or the Interlocking Operator. All parties shall treat the situation as if the vehicle has derailed, and the vehicle shall not be moved. Subsequent movement of the affected rail vehicle shall not be undertaken until investigated and determined to be safe by authorized personnel.

12.4.3 Personnel shall not take any action until they are positive that all radio transmissions or receptions are heard, fully understood, and acknowledged. Individual radio transmissions shall, always, be repeated by the receiver so the transmitter can confirm the message was received completely and by the intended receiver.

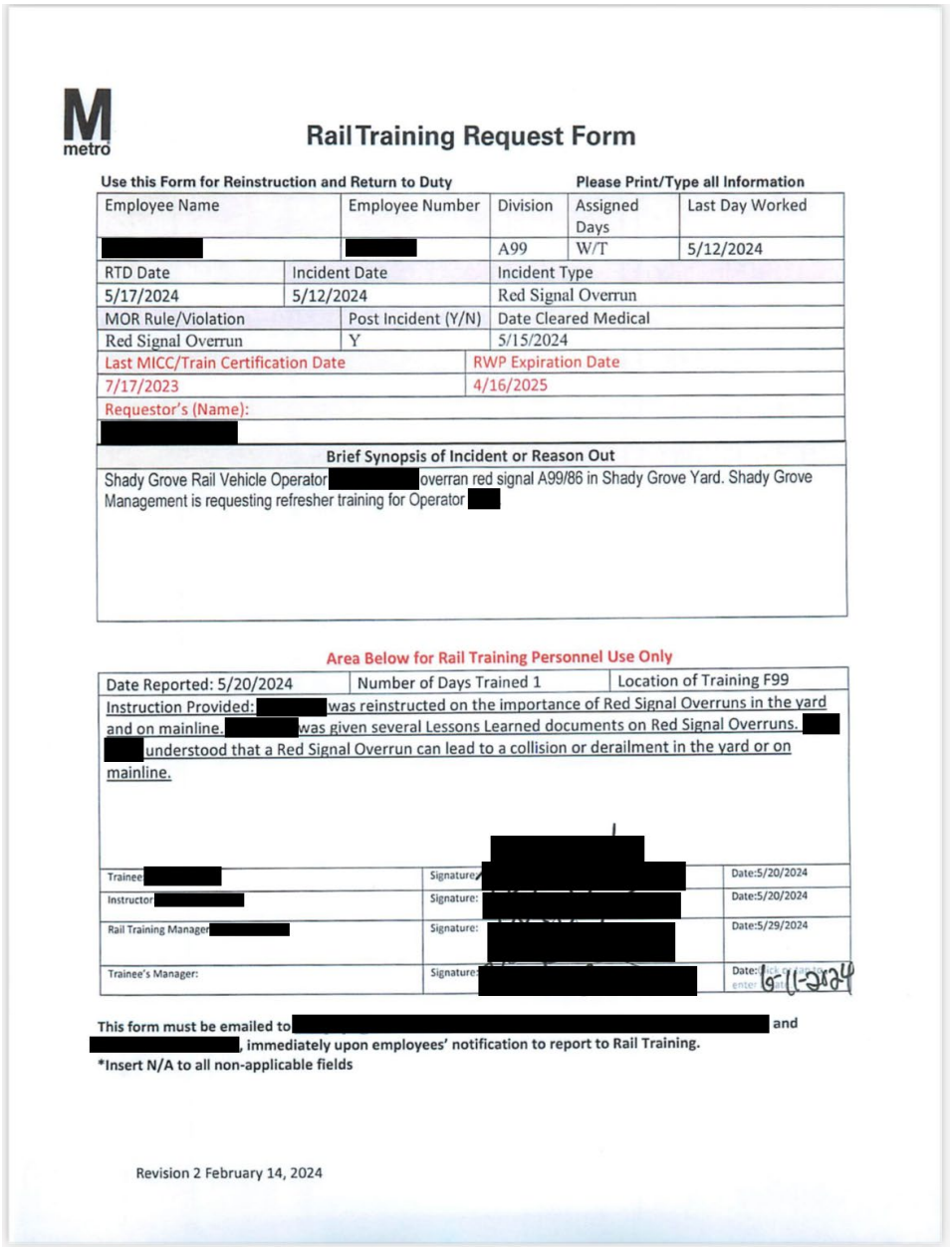
What happened…	*What should have happened…*
The Train Operators in both incidents failed to hold their train at the signal as instructed.	The Train Operators in both incidents should have stopped their trains within 10 feet of the red signal and make contact with the Interlocking Operator.
The Train Operators in both incidents repeated their absolute blocks back to the Interlocking Operator prior to moving their trains, however lost situational awareness and exceeded the block.	The Train Operators in both incidents should have remained vigilant while making the yard move for the end of their block/signal.

RECOMMENDATIONS

- ✓ Emphasize that all operational personnel abide by MOR 3.3, 3.4.2 and 12.4.3.
- ✓ Always follow Rules/Procedures outlined in WMATA's MOR.
- ✓ Ask for support or ask additional questions if you are unfamiliar with a yard or the move being requested.

Rail Transportation *Lessons Learned* *Number: RTRA-303-16-00*

Appendix E – Refresher Training Records



Rail Training Request Form

Use this Form for Reinstruction and Return to Duty **Please Print/Type all Information**

Employee Name	Employee Number	Division	Assigned Days	Last Day Worked
[redacted]	[redacted]	A99	W/T	5/12/2024

RTD Date	Incident Date	Incident Type
5/17/2024	5/12/2024	Red Signal Overrun

MOR Rule/Violation	Post Incident (Y/N)	Date Cleared Medical
Red Signal Overrun	Y	5/15/2024

Last MICC/Train Certification Date	RWP Expiration Date
7/17/2023	4/16/2025

Requestor's (Name):
[redacted]

Brief Synopsis of Incident or Reason Out

Shady Grove Rail Vehicle Operator [redacted] overran red signal A99/86 in Shady Grove Yard. Shady Grove Management is requesting refresher training for Operator [redacted]

Area Below for Rail Training Personnel Use Only

Date Reported: 5/20/2024	Number of Days Trained 1	Location of Training F99

Instruction Provided: [redacted] was reinstructed on the importance of Red Signal Overruns in the yard and on mainline. [redacted] was given several Lessons Learned documents on Red Signal Overruns. [redacted] understood that a Red Signal Overrun can lead to a collision or derailment in the yard or on mainline.

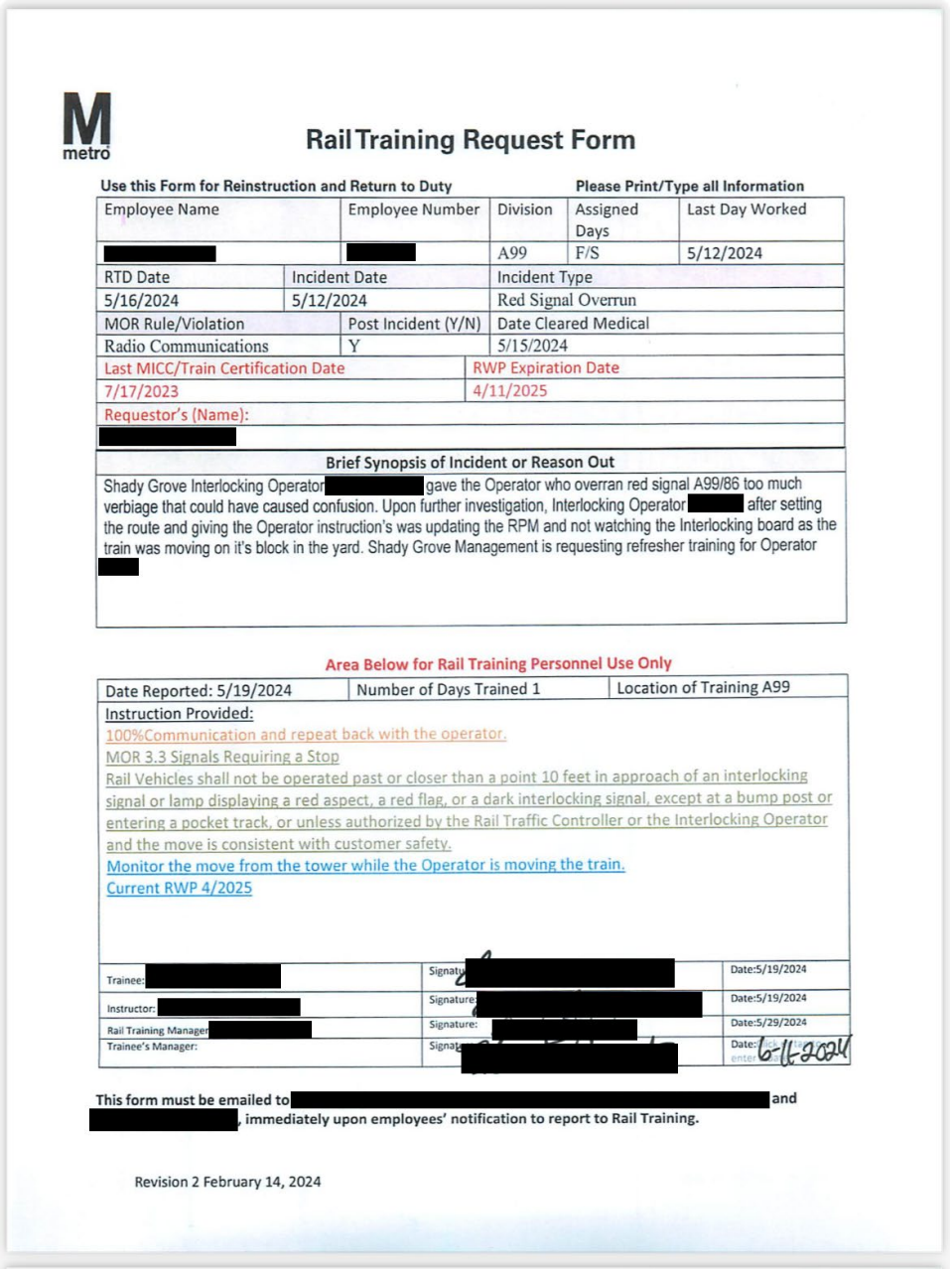
Trainee [redacted]	Signature: [redacted]	Date:5/20/2024
Instructor [redacted]	Signature: [redacted]	Date:5/20/2024
Rail Training Manager [redacted]	Signature: [redacted]	Date:5/29/2024
Trainee's Manager:	Signature: [redacted]	Date: 6/11/2024

This form must be emailed to [redacted] and [redacted], immediately upon employees' notification to report to Rail Training.

***Insert N/A to all non-applicable fields**

Revision 2 February 14, 2024

Figure 20 - RVO Refresher Training Records



Rail Training Request Form

Use this Form for Reinstruction and Return to Duty — **Please Print/Type all Information**

Employee Name	Employee Number	Division	Assigned Days	Last Day Worked
[redacted]	[redacted]	A99	F/S	5/12/2024

RTD Date	Incident Date	Incident Type
5/16/2024	5/12/2024	Red Signal Overrun

MOR Rule/Violation	Post Incident (Y/N)	Date Cleared Medical
Radio Communications	Y	5/15/2024

Last MICC/Train Certification Date	RWP Expiration Date
7/17/2023	4/11/2025

Requestor's (Name): [redacted]

Brief Synopsis of Incident or Reason Out

Shady Grove Interlocking Operator [redacted] gave the Operator who overran red signal A99/86 too much verbiage that could have caused confusion. Upon further investigation, Interlocking Operator [redacted] after setting the route and giving the Operator instruction's was updating the RPM and not watching the Interlocking board as the train was moving on it's block in the yard. Shady Grove Management is requesting refresher training for Operator [redacted]

Area Below for Rail Training Personnel Use Only

Date Reported: 5/19/2024	Number of Days Trained 1	Location of Training A99

Instruction Provided:

100%Communication and repeat back with the operator.

MOR 3.3 Signals Requiring a Stop

Rail Vehicles shall not be operated past or closer than a point 10 feet in approach of an interlocking signal or lamp displaying a red aspect, a red flag, or a dark interlocking signal, except at a bump post or entering a pocket track, or unless authorized by the Rail Traffic Controller or the Interlocking Operator and the move is consistent with customer safety.

Monitor the move from the tower while the Operator is moving the train.

Current RWP 4/2025

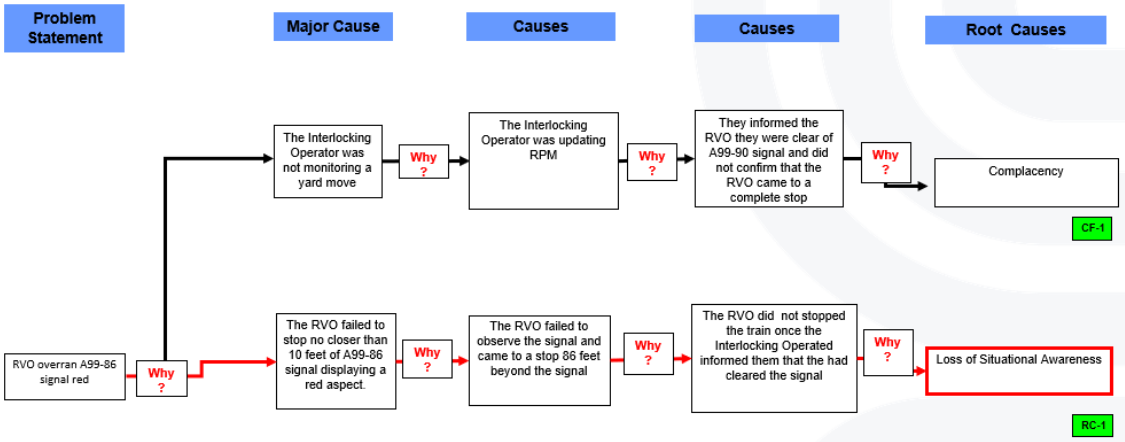
Trainee: [redacted]	Signature: [redacted]	Date:5/19/2024
Instructor: [redacted]	Signature: [redacted]	Date:5/19/2024
Rail Training Manager [redacted]	Signature: [redacted]	Date:5/29/2024
Trainee's Manager:	Signature: [redacted]	Date: 6-11-2024

This form must be emailed to [redacted] and [redacted], immediately upon employees' notification to report to Rail Training.

Revision 2 February 14, 2024

Figure 21 - Interlocking Operator Refresher Training Records

Appendix F – Why-Tree Analysis



Root Cause Analysis