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W-0421 - Collision – New Carrollton Yard– July 1, 2025

Document Purpose

This WMSC written report on WMATA Metrorail's safety event investigation and review of Metrorail's findings in accordance with the WMSC Program Standard, in conjunction with the attached Metrorail investigation report that has undergone WMSC staff review, feedback, and Metrorail revision, describes the investigation activities, identifies factors causing or contributing to the accident, 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 report) as a unified item for adoption at the Washington Metrorail Safety Commission meeting on April 14, 2026.

WMSC staff recommend adoption of this investigation.

Safety event summary:

On Tuesday, July 1, 2025, at approximately 4 p.m. Prime Mover 39, pushing flatcar 533 entered the New Carrollton Yard, and was granted permission to clear signal D99-82, in order to secure Prime Mover 39 on the storage tracks. The Flagman aligned the switches so that Prime Mover 39 could travel straight onto the available storage track, and then boarded the Flatcar and gave the Equipment Operator the signal to proceed.

As the Flagman cleared signal D99-82, he misjudged the location of PM 47, and as a result Flatcar 533 made contact with Prime Mover 47. Once contact was verified, the Equipment Operator and the Flagman reported the event to the Office of Track and Structures Assistant Superintendent. After the Safety Information Official was notified, Safety on Call was dispatched to the scene.

Reviews to Maximo data revealed that the collision caused damages on Flatcar 533 step grab rails and board holders, and Prime Mover 47 had a damaged hose reel.

The probable cause for this collision at New Carrollton Yard was the result of misjudgment by the Flagman, who did not notice that Prime Mover 39 didn't have enough clearance to move into the storage track. A contributing factor was that PM 47 was fouling the track by not being behind the clearance post sign near D99-82 signal.

Investigation W-0421 led to specific recommended corrective actions (RCA), including:

- PM 39 Flagman completed refresher training on 03/31/2026

WMSC staff observations

The employee had worked alternate day-to-night work schedules leading up to the incident. There was a total of 40 hours of overtime worked in the two weeks preceding the incident. It was noted that the employee had worked 10

consecutive days without a day off. The Washington Metrorail Safety Commission encourages Metrorail to engage with their union representatives to help ensure that fatigue management practices are designed and effectively implemented for employees in various maintenance and inspections departments at Metrorail.

Washington Metropolitan Area Transit Authority
Department of Safety
Office of Safety Investigations

FINAL REPORT OF INVESTIGATION A&I E25979

Date of Event:	July 1, 2025
Type of Event:	Collision
Incident Time:	04:28 Hours
Location:	New Carrollton Yard
Time and How received by Safety:	04:52 / SIO
Washington Metrorail Safety Commission (WMSC) Notification Time:	05:53 hours
Responding Safety Officers:	Office of Safety Oversight (OSO)
Rail Vehicle:	PM39, F533, PM47
Injuries:	None
Damage:	F533 step grab rails and sideboard holders PM47 hose reel
Emergency Responders:	None
Safety Universal Data System (SUDS) Number	20250701#127964

July 1, 2025
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Abbreviations and Acronyms

AIMS	Advanced Information Management System
ARS	Audio Recording System
CCTV	Closed-Circuit Television
CENV	Office of Vehicle Program Services, Rail Fleet
EO	Equipment Operator
FC	Flat Car
IO	Interlocking Operator
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
PM	Prime Mover
SIO	Safety Information Official
SMS	Safety Measurement System
SOC	Safety on Call
TRST	Office of Track and Structures
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, July 1, 2025, at 04:23 hours, Prime Mover (PM) 39 contacted the New Carrollton Tower to request permission to enter the yard from the mainline to secure PM 39 on the storage tracks. PM 39 was pushing flatcar (FC) 533 when it entered the yard. There was a Flagman positioned on the flatcar to guide the Equipment Operator (EO). The Interlocking Operator (IO) granted PM 39 permission to enter the yard and clear D99-82 signal. The IO instructed the EO to contact and notify the Tower when they cleared D99-82 signal.

The Flagman alighted the flatcar to manually throw switches so PM 39 would be aligned to the proper storage track. After properly aligning the switches, the Flagman boarded the FC and gave the EO the signal to proceed. As they were clearing the D99-82 signal, the Flagman misjudged the location of PM 47, and FC 533 made contact with PM 47. As a result of this collision, the lever and hose reel on PM 47 were damaged, and the side pockets, side boards, and stanchions on FC 533.

The probable cause for the Collision at New Carrollton Yard on July 1, 2025, was the result of misjudgment by the Flagman. Specifically, the Flagman did not identify that PM 39 did not have enough clearance to make a safe move to the desired storage track. A contributing factor was that PM 47 was fouling the track by not being behind the clearance post sign located near D99-82 signal and the storage tracks.

Incident Site

Outdoor ballasted storage tracks with no automated switches, signals, or third rail power.

Field Sketch/Schematics

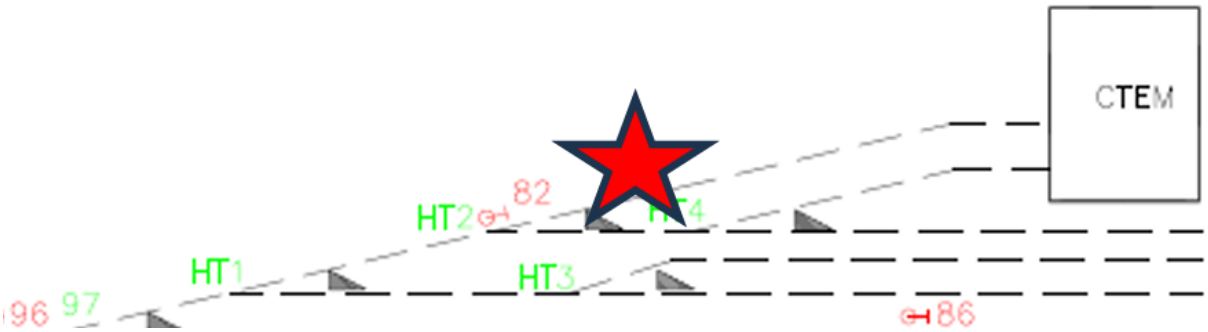


Figure 1 This picture is not to scale. The red star indicates the approximate location of this collision.

Purpose and Scope

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

Investigative Methods

The investigative methodologies included the following:

- Site Assessment through video and document review.

- Formal Interviews – Safety interviewed four individuals 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). Safety interviewed the following individuals:
    - Equipment Operator of PM 39
    - Equipment Operator of PM 47
    - Flagman of PM 39
    - Flagman of PM 47

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

- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
    - 30-Day work history review
    - Metrorail Operating Rulebook (MOR)
    - National Oceanic and Atmospheric Administration (NOAA)
    - Maximo Data
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
    - Audio Recording System (ARS) playback
    - Closed-Circuit Television (CCTV)

Investigation

On Tuesday, July 1, 2025, at 03:50 hours, PM 47 contacted the New Carrollton Tower to request permission to enter the yard from the mainline to secure PM 47 on the storage tracks. PM 47 was pushing FC 533 when it entered the yard. While reviewing the audio recording system (ARS), you could hear the Flagman and EO perform safety stops before hearing the Flagman tell the EO to stop. During interviews, the Flagman of PM 47 stated they were guiding the EO backwards since the flat was being pushed, so the EO had a better view of where the clearance sign was than they did. The EO and Flagman secured PM 47; however, it was a few feet ahead of the clearance sign. The Flagman mentioned that once they heard the unit shut off, they chocked the wheels of the flat car and set the hand brake.

At 04:23 hours, PM 39 arrived at D99-20 signal on track one at New Carrollton Station after returning from completing insulator work at Capitol South Station. PM 39 contacted the New Carrollton Tower to request permission to enter the yard from the mainline to secure PM 39 on

the storage tracks. PM 39 was pushing FC 533 when it entered the yard. There was a Flagman positioned on the flatcar to provide guidance to the EO. The Interlocking Operator (IO) granted PM 39 permission to enter the yard and clear D99-82 signal. The IO instructed the EO to contact and notify the Tower when they cleared D99-82 signal.

At 04:27 hours, Closed Circuit Television (CCTV) showed PM 39 pushing FC 533 then the Flagman alighted FC 533 to manually throw switches into the proper alignment so that PM 39 could travel straight onto the available storage track. After properly aligning the switch, the Flagman reboarded the unit and gave the EO the proceed signal using their flashlight. As PM 39 was traveling, the Flagman was standing on the right front corner of the flat facing the Operator with their back to the stored units.

The front left side of FC 533 made contact with the left front side of PM 47. PM 39 stopped and the Flagman was seen verifying if contact was made with PM 47. Once contact was verified, the EO and Flagman reported it to the Office of Track and Structures (TRST) Assistant Superintendent.

At 04:49 hours, the TRST Assistant Superintendent notified the IO of the collision and then notified the Safety Information Official (SIO). At 04:52 hours, the SIO notified the Safety on Call (SOC) and dispatched them to D99 yard. The SIO notified the WMSC, and a scene release was granted at 05:03 hours.

At 05:12 hours, the SOC arrived on the scene and observed that PM 47 was positioned above switch HT4, approximately 15 feet beyond the “No Clearance” marker. There was an estimated 20 feet of space behind PM 47 for repositioning and to be behind the “No Clearance” marker.

At 06:15 hours, the Safety On-Call (SOC) person cleared the scene, and normal operations resumed.

Maximo data was reviewed, which identified damages on FC 533 step grab rails and board holders, and PM47 had a damaged hose reel, which has all been repaired and replaced.

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

Time	Description
03:50:54 hours	PM-47: Arrived at D99-20 signal and was granted permission by the IO to enter the yard to clear 82 signal. [NC-YD2 Radio]
03:55:36 hours	PM-47 Flagman: Instructed the EO to stop behind 82 signal. [NC-YD2 Radio]
04:23:16 hours	PM-39: Arrived at D99-20 signal and the IO granted permission to enter the yard to clear 82 signal. [NC-YD2 Radio]
04:27:44 hours	PM-39: Arrived at storage tracks, and the Flagman debarks to throw the switch manually. [CCTV]
04:29:00 hours	PM-39 flatcar contacted PM-47. [CCTV]
04:49:09 hours	TRST Assistant Superintendent: Informed the New Carrollton Interlocking Operator (IO) of the collision. [Tower Phone]
04:50:42 hours	TRST Assistant Superintendent: Informed the Safety Information Official (SIO) of the collision. [Emergency MGMT Phone]
04:52:36 hours	SIO: Notified SAFE of collision. [Emergency MGMT Phone]

Time	Description
04:56:02 hours	SIO: Notified the OM of collision. [Emergency MGMT Phone]
05:12:00 hours	OSO: Arrived on scene. [Field Report]
06:15:00 hours	OSO: Cleared scene. [Field Report]

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

Office of Vehicle Program Services (CENV)

Adopted from Office of Vehicle Program Services report with minor formatting and grammatical edits:

On the morning of July 1st, 2025, at approximately 0430 hours, Flat Car F533, being pushed in reverse through a switch by PM39 made contact with PM47. PM47 was parked and unattended. The impact caused damage to F533 and minor damage to PM47. No injury to personnel or damage to infrastructure was reported. 3rd rail is not present at the incident location. Appendix C – CNEV Report

Interview Findings and Written Statements

As part of the investigation launched into the event, Safety interviewed four people. The interviews 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.

Equipment Operator PM-39

• The EO of PM-39 did not have a clear line of sight to the clearance of the stored unit.
• The EO was operating PM-39 in a push mode of operation.
• The EO of PM-39 was moving under the instruction of the Flagman.
• After the collision occurred, the EO of PM-39 noticed that the stored unit was beyond the clearance sign.

Flagman PM-39

• The Flagman of PM-39 debarked the unit and had to manually throw one switch.
• The Flagman of PM-39 was flagging the unit from the opposite side of the flat car with its back to the stored unit.
• The Flagman of PM-39 thought that the unit would clear the stored unit from their line of sight.
• The Flagman of PM-39 heard a clicking sound, which prompted them to signal for the roadway maintenance machine (RMM) to stop.

Equipment Operator PM-47

• The EO of PM-47 did not know any other unit was being stored in the yard after their unit.
• The EO of PM-47 had stored the unit forty minutes before the collision.
• The EO of PM-47 stated that it is normal to store units beyond the clearance sign due to yard size and to have multiple units stored in the yard at times.

Flagman PM-47

• The Flagman of PM-47 was flagging from the ground.
• The Flagman of PM-47 assumed the unit was clear after hearing the PM-47 dump and shut down.
• The Flagman of PM-47 stated there was extra room behind the unit if needed and was requested by the EO.

Weather

On July 1, 2025, at the time of the incident, NOAA recorded the temperature as 81°F, with mostly cloudy skies, winds of 10 mph, and 77% humidity. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: New Carrollton, MD.

Related Rules and Procedures

MOR 9.9.5
When storing Roadway Maintenance Machines, Operators shall:

C. Perform a "walk-around" inspection to ensure brakes are properly applied, chocks or stops are in place, and no equipment is fouling any other tracks.

11.5.1

Before Roadway Maintenance Machines enter or foul a controlled track, the employee-in-charge must obtain authorization from the Rail Traffic Controller or Interlocking Operator. This verbal authorization must specify time, limits, and tracks to be used, and will be made known to employees accompanying the equipment.

11.6.2

Personnel must confirm there is sufficient room in the tracks to hold equipment and must not leave equipment fouling the connecting tracks.

11.12.2

Unattended Roadway Maintenance Machines, either on or off the rail, shall be secured, locked, and left clear of all tracks that are in service without blocking view from crossings.

Human Factors

<u>Fatigue</u>

PM-39 EO

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

PM-39 Flagman

SAFE examined signs and symptoms of fatigue that may have been present at the time of the incident. No video of the involved person was available to ascertain whether signs of fatigue were present. The employee reported feeling moderately alert at the time of the incident. The employee reported symptoms of fatigue, including difficulty concentrating.

Fatigue Risk

PM-39 EO

SAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident occurred at a time of low circadian alertness. The employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked night shift in the days leading up to the incident. The employee was awake for 7.46 hours at the time of the incident. The employee reported 6 hours of sleep in the 24 hours preceding the incident. The off-duty

period was 16 hours, which provides an opportunity for 7-9 hours of sleep. This was a comparable amount of sleep to the employee's usual workday sleep durations. The employee reported no issues with sleep. The employee worked nights in the days leading up to the incident.

PM-39 Flagman

SAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident occurred at a time of low circadian alertness. The Employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee performed day and night work in the days leading up to the incident. The employee was awake for 6.96 hours at the time of the incident The employee reported 10 hours of sleep in the 24 hours preceding the incident. The off-duty period was 16 hours, which provides 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 day and night shifts in the days leading up to the incident.

PM-39 EO

Circadian Considerations

The incident occurred at 04.28 hours which is during the primary window of circadian low. As the person had been working day and night shifts, the Out of Phase result is at -9.39 hours. Indicating that the person's biological clock is shifted about 9 hours earlier than the reference day, showing significant circadian misalignment and elevated fatigue risk.

Work Schedule and Overtime

The employee had worked alternate day-to-night work schedules leading up to the incident. There was a total of 40 hours of overtime worked in the two weeks preceding the incident. It was noted that the employee had worked 10 consecutive days without a day off.

Sleep and Awake Data

- Sleep duration (prior to incident): 7.0 hours
- Time awake at time of incident: 7.29 hours
- Release period prior to duty: 16.0 hours

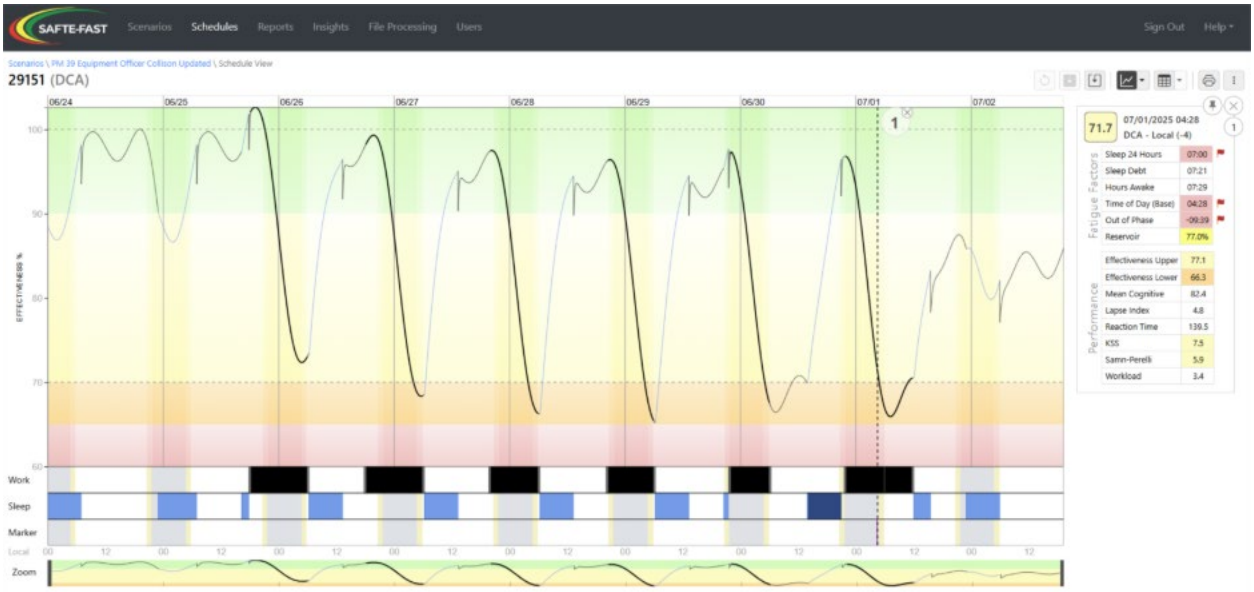
Biomathematical Fatigue Modeling (SAFTE-FAST WebSFC)

A biomathematical fatigue modelling application (SAFTE-FAST WebSFC) was used to further evaluate potential fatigue risks based on the employee’s work schedule, self-reported sleep the day prior to the incident and reported habitual sleep patterns.

- Estimated performance effectiveness: 71.7% (moderate fatigue, performance errors likely to occur).
- Karolinska Sleepiness Scale (KSS): 7.5 (sleepy but still able to stay awake)
- Samn-Perelli Fatigue Scale (SP): 5.9 (extremely tired, very difficult to concentrate).

The cumulative sleep loss is showing a sleep debt of 7.21 hours indicating there is noticeable fatigue, with a possibility of slow recovery

Karolinska Sleepiness Scale (KSS) subjective measure of sleepiness to help assess an individual's level of drowsiness or alertness.
Samn-Perelli Fatigue Scale (SP) which assesses how fatigued a person feels before and during a task.



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

PM-39 Flagman

Circadian Considerations

The incident occurred at 04.28 hours which is during the primary window of circadian low.

Work Schedule and Overtime

The employee had worked alternate day to night work schedules leading up to the incident. There was a total of 20 hours of overtime worked in the two weeks preceding the incident.

Sleep and Awake Data

- Sleep duration (prior to incident): 6.0 hours
- Time awake at time of incident: 12.29 hours

- Release period prior to duty: 16.0 hours

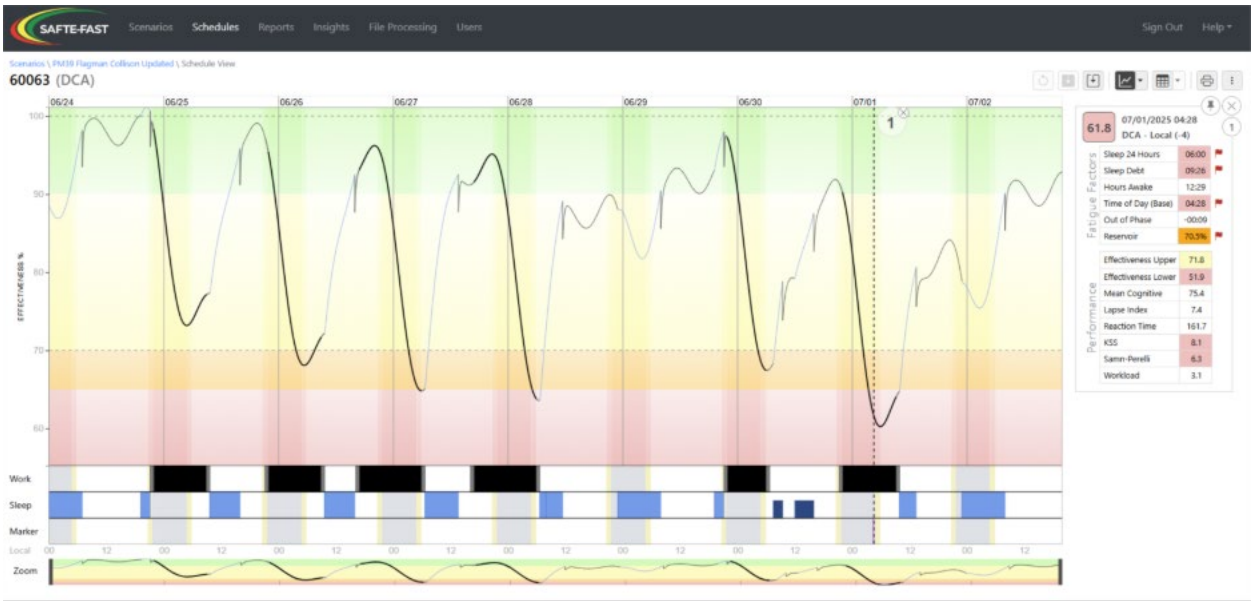
Biomathematical Fatigue Modeling (SAFTE-FAST WebSFC)

A biomathematical fatigue modelling application (SAFTE-FAST WebSFC) was used to further evaluate potential fatigue risks based on the employee's work schedule, self-reported sleep the day prior to the incident and reported habitual sleep patterns.

- Estimated performance effectiveness: 61.8% (high fatigue risk, serious safety concern)
- Karolinska Sleepiness Scale (KSS): 8.1 (sleepy but still able to stay awake)
- Samn-Perelli Fatigue Scale (SP): 6.3 (extremely tired, very difficult to concentrate).

The cumulative sleep loss is showing a sleep debt of 09.26 hours indicating there is noticeable fatigue, with a possibility of slow recovery

Karolinska Sleepiness Scale (KSS) subjective measure of sleepiness to help assess an individual's level of drowsiness or alertness.
Samn-Perelli Fatigue Scale (SP) which assesses how fatigued a person feels before and during a task.



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Post-Incident Toxicology Testing

Post-Incident Toxicology Testing was not conducted for this event for the Equipment Operator of PM 39.

WMATA's Drug and Alcohol Program determined that the Flagman of PM-39 complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Findings

- PM-47 was not properly stored behind the clearance sign and fouled the traverse track.
- PM-47 personnel failed to notify the tower of cleared and physically verify clear before alighting the unit.
- PM-39 Flagman was flagging the unit with their back to the stored unit.
- PM-39 EO did not have a clear line of sight and was solely depending on the Flagman's judgment.

Immediate Mitigation to Prevent Recurrence

- PM-39 and PM-47were removed from service.
- Both the Equipment Operators and Flagmen were removed from service.

Probable Cause Statement

The probable cause for the Collision at New Carrollton Yard on July 1, 2025, was the result of misjudgment by the Flagman. Specifically, the Flagman did not identify that PM 39 did not have enough clearance to make a safe move to the desired storage track. A contributing factor was that PM 47 was fouling the track by not being behind the clearance post sign located near D99-82 signal and the storage tracks.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
127964 _SAFE CAPS_TRST_ 001	PM-39 Flagman will complete refresher training.	TRST SRC	03/31/2026

Appendices

Appendix A – Interview Summaries

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.

PM-39 Equipment Operator

The Equipment Operator is a WMATA employee with seven years of service and seven years of experience as an equipment operator. The Equipment Operator holds a Roadway Worker Protection (RWP) Level four certification that expires in August 2025.

During the interview, the equipment operator reported that their assignment for the night of this incident was to operate PM-39 to Capitol South (D05) track two to work on the insulators. At 04:02 hours, they departed D05 and encountered no issues during transport. Once arriving at New Carrollton, they were granted permission to enter the yard to store the unit on the storage tracks. Once at the last switch before the storage tracks, the flagman signaled to stop. After stopping, the flagman debarked the unit to throw the switch for proper alignment, then got back aboard and signaled to proceed. From the operator's position, the stored unit could be seen, but how much clearance couldn't be seen. With the proceed signal from the flagman, the equipment operator continued while moving, and the flagman signaled to stop, but at that point, contact had already been made with the stored unit. Once contact was made, the equipment operator noticed that the stored unit wasn't clear of the clearance sign and was past the sign about five to seven feet.

PM-39 Flagman

The Flagman is a WMATA employee with three years of service and three years of experience as a Track Repair C. The Flagman holds a Roadway Worker Protection (RWP) Level Two certification that expires in February 2027.

During the interview, the flagman reported that after arriving at New Carrollton Yard, they received their safety briefing, and they did not think that they were going to be a flagman, but due to new employees on the shift, they were switched by the supervisor. When coming back into New Carrollton Yard to the storage tracks, they were operating as the flagman on the flat being pushed by PM-39. After manually throwing the switch in the storage tracks, they reboarded the unit, and from the line of sight, they thought they would clear the stored unit in the yard. After giving the proceed signal to the equipment operator and the unit started moving, they heard a clicking sound, which at that time they signaled to stop, but at that time the units had already made contact.

PM-47 Equipment Operator

The Equipment Operator is a WMATA employee with three years of service and three years of experience as an equipment operator. The Equipment Operator holds a Roadway Worker Protection (RWP) Level Two certification that expires in April 2026.

During the interview, the equipment operator reported that their assignment was at Capitol South to complete joint elimination. On the night of this event, the assigned flagman and equipment operator had great lines of communication. When returning to the yard after clearing D99-82, signal safety stops were made to allow the flagman to manually throw switches for proper

alignment to storage. All lights on the unit were working, and there were visible lines of sight. From the Operators' positioning, they could not see how much available space was behind the unit. It is times when units are stored and not clear of the clearance signs due to the yard being small and having multiple units stored in this location. With no organization of unit placement, the EO did not know that any other unit was being stored after theirs. At the time of the collision, the EO stated that they were in the office and off the unit for approximately forty minutes.

PM-47 Flagman

The Flagman is a WMATA employee with twelve years of service and eight years of experience as a Track Repair C. The Flagman holds a Roadway Worker Protection (RWP) Level four certification that expires in April 2026.

During the interview, the flagman reported that the night of the event, there was communication on their handheld radio on NC-YD2. A roadway job safety briefing was completed before work started. When returning to D99, they threw three switches for proper alignment for storage, while on the ground, they radioed and gave the proceed sign with their flashlight from the ground. The flagman stated that if extra room was needed to store behind the clearance signs, the equipment operator should have notified them that extra room was needed. Once the equipment operator dumped the air and the lights were turned off the flagman set the handbrake and chalked the wheels of the flat.

Appendix B – Photographs

Figure 2 Points of contact with Flat 533 and PM-47

Figure 3 The clearance point sign showing PM-47 is not clear

Figure 4 Damage to side pockets, side boards, and stanchions on F533

Figure 5 Damage to the cut lever and the hose reel on PM47.

Washington Metropolitan Area Transit Authority

CENV

Incident Report

PM47 Collision

July 1, 2025

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LOCATION: New Carrollton Yard (D99)

INCIDENT #: N/A

DATE: July 1st, 2025

TIME: 0430

Investigation Team Members

[redacted]

Vehicle Engineer – CENV
Assistant Manager – CENV
Assistant Superintendent – CTEM

Report Prepared By: [redacted]

Report Approved By: [redacted]

Executive Summary

On the morning of July 1st, 2025, at approximately 0430 hours, Flat Car F533, being pushed in reverse through a switch by PM39 made contact with PM47 (see Figure 1). PM47 was parked and unattended. The impact caused damage to F533 and minor damage to PM47. No injury to personnel or damage to infrastructure was reported. 3rd rail is not present at the incident location.

Figure 1. Collision between F533 and PM47

Investigation of this incident revealed insufficient clearance for F533 to negotiate the switch on the MOW storage tracks behind signal 082. PM47 was parked approximately 15 feet forward of the "Clearance Point" sign, fouling the switch.

Findings of Investigation

At approximately 0430 hours on the morning of July 1st, 2025, within the limits of the New Carrollton CTEM yard, PM 39 was pushing flatcar F533 in a normal reverse move. The switch at the incident location is manually operated and was set in the normal position.

Information from the onboard data logger was retrieved and graphed (see Figure 2) and cross-referenced with downloaded video footage. This allowed the following timeline of events to be constructed. Note that the datalogger internal time clock measures approximately 19 minutes behind local time.

- 04:09(28):44 – Service brake is released, and PM39 consist begins reverse move.
- 04:10(29):12 – Flatcar F533 contacts PM47 at 2mph.
- 04:10(29):14 – Service brake application is initiated. Brake pipe pressure remains steady.
- 04:10(29):17 – Consist comes to a complete stop approximately 15 feet after contact.

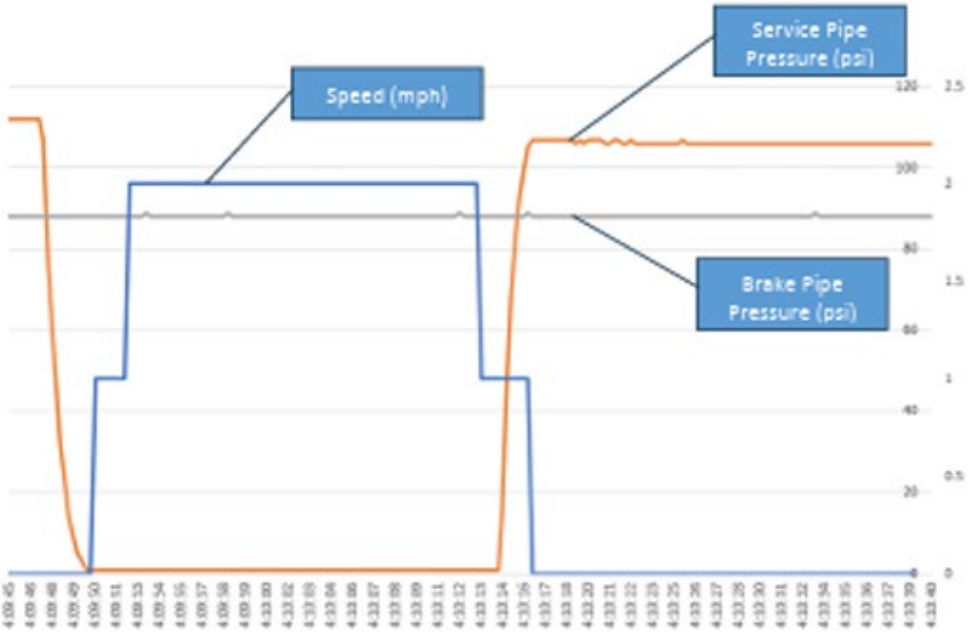

Figure 2. Graphical timeline of incident.

Post-incident inspection of F533 by CTEM revealed damage to the side pockets and stanchions on the booth side (see Figure 3) over a linear distance of approximately 15 feet. No damage to the truck was noted.

Figure 3. Damage to side pockets, side boards, and stanchions on F533.

Post-incident inspection of PM47 by CTEM revealed damage to the cut lever and left-side hose reel (see Figure 4). No additional damage was noted.

Figure 4. Damaged cut lever and hose reel noted on PM47.

Inspection of the incident scene indicated that PM47 had been parked approximately 15 feet forward of the "Clearance Zone" sign, causing the front left corner of the unit to foul the adjacent track.

Conclusion

Investigation revealed insufficient clearance for F533 and PM39 to traverse the switch. PM47 was parked within the fouling zone of the switch being traversed.

Recommendations

- Repair the hose reel and cut lever on PM47.
- Repair damage to side pockets and railings on Flatcar F533.
- CENV does not recommend any changes to equipment configuration.

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

Work Order #: 19634038
Type: CM

19634038

Status: CLOSE
07/07/2025 09:04

Work Description: Incident at D99 yard
Job Plan Description:

Work Information

Asset:	MPM47	PM47, PRIME MOVER, HARSCO, 354C, S/N 6111211, 4	Owning Office:	CTEM	Parent:
Asset Tag:	MPM47		Maintenance Office:	CTEM-NCAR-HVYR	Create Date: 07/01/2025 13:23
Asset S/N:	6111211		Labor Group:	CTEM-NCAR-HVY	Actual Start: 07/01/2025 13:28
Location:	1230	D99, NEW CARROLLTON YARD	Crew:		Actual Comp: 07/07/2025 07:33
Work Location:	13938	D90, NEW CARROLLTON YARD, BUILDING (B), CTEM SHOP	Lead:		Item: CTEM49200006
Failure Class:	CTEM014	WORKING COMPONENTS	GL Account:	WMATA-02-33380-50499070-041-**********-*****-OPR**	
Problem Code:	1829	HOSE REEL	Supervisor:	[redacted]	[redacted]
[redacted]			[redacted]		Target Comp:
Chain Mark Start:			Chain Mark End:		Scheduled Start:
Create-Mileage:	0.0		Complete-Mileage:	0.0	

Task IDs

Task ID	
10	replaced hose reel

[redacted] - 7/1/25 - Remove and replace left front hose reel (damaged in accident)

Component: 000-400-WRK-100 WORKING COMPONENTS, HOSE Work Accomp: REPLACED NEW Reason: BROKEN 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]										
[redacted]										
							[redacted]			

Measurements

Asset	Description	Asset Position	Measurement Point Description	Before Meas	After Meas	Last Meas	Last Meas Date	LL	UL	UNIT
923635	DIESEL ENGINE, DETROIT SERIES 60, HARSCO 354C		CTEM ASSET RUN HOURS		5200.00	5154.00	6/4/25 12:53	-2.000	1000000.0	HOUR

Failure Reporting

Cause		Remedy		Supervisor	Remark Date
2671	PHYSICAL DAMAGE	0004	REPLACED	[redacted]	07/07/2025

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

Work Order #: 19634038
Type: CM

19634038

Status: CLOSE
07/07/2025 09:04

Work Description: Incident at D99 yard
Job Plan Description:

Failure Reporting

Cause	Remedy	Supervisor	Remark
Remarks: replaced the hose reel assembly inspected unit ready for service			

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Appendix E – Why-Tree Analysis