



## **WMSC Commissioner Brief: W-0042 – Collision on Largo Tail Track on August 15, 2019**

*Prepared for Washington Metrorail Safety Commission meeting on August 4, 2020*

### **Safety event summary:**

On August 15, 2019, an out of service train moving from the Largo Town Center platform to the tail track collided with a stationary train that was stored near the bump post marking the end of Track 2.

The moving train accelerated to more than 10 mph before the operator applied emergency braking. The investigation finds the train was going about 5.8 mph at the time of the collision, moving the stationary train approximately 1 foot. Proper safety stops were not conducted.

The train operator reported the collision, but attempted to alter the scene by entering the stationary train, keying up the stationary train, and attempting to decouple the trains. This did not work. Investigators arrived a short time later.

Couplers, anti-climbers and shear bolts were damaged by the collision.

Video recordings show the operator was violating electronic device policies through, at minimum, possession of a smart watch, and that the operator was regularly using the sun visor in the 7000 Series train cabs to block the inward facing camera.

### **Probable Cause:**

The operator's inattention and failure to conduct safety stops led to this collision. Contributing to this collision, Metrorail had not fully enforced and monitored compliance with electronic device policies.

### **Corrective Actions:**

Metrorail issued an Operations Personnel Notice emphasizing the importance of safety stops on August 23, 2019. Metrorail also redistributed its electronic device policy to all personnel.

Metrorail has developed plans for roll-up sun visors on 7000 Series trains that will replace the visors that could block inward facing cab cameras.

### **WMSC staff observations:**

This event led to the WMSC's direction to WMATA soon after the collision to change the sun visors in the 7000 Series railcars so that they could not be used to block inward facing cameras. This change must also be incorporated into the 8000 Series procurement.

This event also demonstrates the concerns raised by the October 7, 2019 collision near Farragut West station regarding the need for Metrorail to better enforce and monitor compliance with electronic device policies.

**Staff recommendation:** Adopt final report.

**FINAL REPORT OF INVESTIGATION A&I E19431**

**SMS 20190816#82271**

<b>Date of Event:</b>	08/15/2019
<b>Type of Event:</b>	Collision
<b>Incident Time:</b>	14:45 hrs.
<b>Location:</b>	Largo Tail Track , Track 2
<b>Time and How received by SAFE:</b>	14:47 hrs., On-Call Phone
<b>Safety Officer Response:</b>	Yes
<b>Time of Safety Officer Arrival:</b>	15:40 hrs.
<b>Time of Safety Officer Departure:</b>	19:10 hrs.
<b>Rail Vehicle:</b>	Operating Consist <b>L7490-91x7489-88x7490-91x7505-04</b> Stationary Consist <b>L3223-22x3227-26x3198-99</b>
<b>Injuries:</b>	None
<b>Damage:</b>	Shear bolts on multiple cars and minor Anti Climber Damage
<b>Emergency Responders:</b>	Safety and Environmental Management (SAFE), Metro Transit Police Department (MTPD), Office of Car Maintenance (CMNT), Office of Rail Transportation (RTRA), Office of Vehicle Program Services (CENV)

**Executive Summary**

On Thursday, August 15, 2019, at 14:47 hrs., The Rail Operations Control Center (ROCC) notified SAFE that on Thursday, August 15, 2019, at 14:45 hrs., a collision between two (2) non-revenue rail vehicles occurred within the Largo Town Center Track 2, Tail Track. The collision occurred while a Train Operator (T/O) was removing a non-revenue 7K 8-Car Consist (**Lead car 7490**) from the Largo Town Center Station and storing the consist in the Tail Track in front of a stationary 3K 6-Car consist (**Lead car 3223**). The 7K consist made contact with the stationary 3K series consist positioned at the bump post. The T/O reported improper braking effort by the 7k Consist.

Review of the Forward-Facing Car-Borne video camera footage from 7K Consist Lead Car revealed the following information related to the collision accident event:

- The 7K consist T/O performed two safety stops; on the second safety stop, the T/O paused for approximately 8-9 seconds before moving. The train accelerated and made contact with the stationary 3K consist stored at the bump post. Note: The Sun visor covered the Operator's Console camera during the event.

Review of the 7K consist Event Recorder (ER) data download and analysis provided by Vehicle Program Services (CENV) revealed the following information related to the collision accident event:

- (2) two safety stops were performed on approach to stationary 3K consist. After the second safety stop at 14:35:51, the Master Controller (M/C) was moved to a power position, and the train attained a maximum speed of approximately 10.5 mph. The train traveled 121.5 feet after the second safety stop before an emergency brake application was initiated at 14:36:09, and the 7K consist made contact with the 3K consist at 14:36:11 while moving at a speed of approximately 5.8 mph.

Review of the 3K consist Vehicle Monitoring System (VMS) download and analysis obtained from Lead Car was provided by CENV, and it contained the following information related to the collision accident event:

- VMS data shows the train moved one (1) foot as a result of the impact from the 7K consist. The 3K consist Lead Car was then keyed up at 14:38:47. The Uncouple Switch was activated at 14:38:50.5, 14:38:55.5, and 14:40:35.9. There were key-down and key-up events at 14:39:15 and 14:39.29 after the activation of the Uncoupling switch.

Based on salient facts as part of this investigation, Closed Circuit Television (CCTV), ER, VMDS, and CENV analysis, SAFE concludes the following:

1. The T/O failed to perform Safety stops in accordance to Metrorail Rules and Procedures Handbook (MSRPH) Operating Rules
2. The T/O failed to follow MSRPH rule governing proper sun visor positions where sun visors do not obstruct the camera in the operating car
3. The T/O was in possession of a SMART watch with phone connectivity capabilities, which is a violation of the Electronic Device Policy.
4. The T/O attempted to alter a collision event without the approval of the Chief Safety Officer prior to initiating any action to remove rail cars from the accident scene.

Therefore, SAFE is in concurrence with CENV data. The result of this event was due to a lack of adherence to MSRPH and not a result of a mechanical failure/anomaly.

**Notification**

Title	Time	Comment:
WMSC	15:28 hrs.	via phone
FTA CMC	15:26 hrs.	via email

**Incident Site**

Largo Town Center Rear Interlocking, Tail Track 2

**Field Sketch/Schematics**



**Investigation**

On Thursday, August 15, 2019, prior to the event, ROCC received a report of a train operating with a Daily Safety Test (DST) condition as the lead car on the mainline. A Rail Transportation Supervisor (RTRA/S) transported the affected consist in revenue service to Largo Town Center station. Upon arrival, the affected car was removed for service and stored at Largo Town Center terminal platform until departure. Largo Terminal Supervisor (LT/S) assigned a T/O to transport the affected consist to West Falls Church Station to meet with another operator to replace the out of service train with a known good consist.

Approximately 3 minutes after commencing operation of the out of service consist to West Falls Church Station, the T/O can be observed covering the Operator’s console camera with the sun visor while in the presence of an RTRA/S. Moments before covering the camera, the T/O reached for his pocket while the RTRA/S positioned next to T/O attempted to hide his pocket from the camera view with a backpack. Several minutes later, the RTRA/S is observed uncovering the camera. The RTRA/S later disembarked the

out of service train at Stadium-Armory Station. The T/O continued operation and immediately covered the camera for the second time, and the camera remained covered from Stadium-Armory Station to West Falls Church Station. **Note: The T/O was wearing what appeared to be SMART watch on his left wrist during operation of the consist, based on video review. T/O also wore what appeared to be the same SMART watch during the interview process.**

Once on West Falls Church Station platform, track 2, the T/O disembarked the out of service train with the camera still blocked and boarded the change off the consist (L7490) located on the opposite side of West Falls Church Station platform, track 1 headed inbound towards Largo Town Center Station. Once the T/O keyed up on the operating console, the T/O can be observed covering the Operator's Console camera for the third time (first time on this consist). The Operator's Console camera remains covered for the remaining duration of the scheduled transport.

Based on Audio Recording System (ARS) playback, upon arrival to Largo Town Center platform, LT/S gave the T/O permission to a pass 30 Signal displaying a Red Aspect, with further instructions to store the 7K transport train on tail track 2; making all safety stops. The LT/S is heard advising the T/O of the 6-car stationary consist stored at the bump post of the intended move. Forward Facing Car-Borne footage revealed, the T/O entered Largo Center Tail Track 2 and performed two safety stops. On the second safety stop, the T/O paused for approximately 8-9 seconds before moving. Once moving, the train accelerated and made contact with the stationary 3K consist stored at the bump post. After colliding with stationary 3K consist, the T/O uncovered the camera of the transport consist. The T/O reported, the transport consist did not respond to the braking request; therefore, the T/O applied the emergency brake.

Based on the CENV data, after the second safety stop at 14:35:51, the Master Controller (M/C) was moved to a power mode position, and the train attained a maximum speed of 10.5 mph. The train traveled approximately 121.5 feet after the second safety stop before an Emergency brake application was initiated at 14:36:09, and the 7K consist made contact with the 3K consist at 14:36:11 while moving at a speed of approximately 5.8 mph.

The CENV determined that there were no mechanical anomalies with the incident train, and it operated per design.

After the collision, the T/O notified the appropriate personnel of the event. No immediate instructions were rendered to the T/O by Terminal Supervision or ROCC personnel. The T/O then stated, he attempted to uncouple the stationary consist from the transport consist to view the damage caused as a result of the collision but was unable to uncouple the 3K consist. The T/O stated, the reason for attempting to uncouple from the stationary consist was so the graded (slightly sloped) track could assist with rolling the train back.

SAFE personnel arrived on location and performed an on-site inspection of the affected consist, observed brake operation testing, visual track inspection, provided safety oversight to CMNT, TRST, RTRA, and conducted internal investigation processes.

### **Office of Car Maintenance (CMNT)**

The cars on the affected 7K consist were inspected, and the following damages were identified:

- No damage to the trailing seven cars
- 7490 – Front mechanical coupler: Recessed (aligned with the anti-climber), hard couple indicator missing, minor damage to the anti-climber

The cars on the affected 3K consist were inspected, and the following damages were identified:

- No damage to the trailing three cars
- 3222-23 – Car to car drawbar broken shear bolts and minor damage to car 3223 anti-climber
- 3227 – Front coupler broken shear bolts.

All repairs performed on the affected cars involved in this event were documented in Maximo Work Orders.

### **Track and Structure**

TRST crew performed an inspection of the affected area and did not find any anomalies associated with the track as a result of the collision.

### **Communication Section Maintenance (COMM)**

COMM personnel performed radio checks on the affected area with no anomalies found, and all radio checks were loud and clear.

### **Human Factors**

#### **Years of Service**

The Washington Metropolitan Area Transit Authority (WMATA) employee is a 20-year Veteran T/O with 22-years with WMATA. The T/O had a current certification at the time of the incident and possessed a current Road Way Protection (RWP) Level 2 designation. The T/O did not have any operational incidents in the last three years and was familiar with the Orange Line.

## **Fatigue**

Based on SAFE's review of the T/O's 30-day work history, it was determined that the controller's hours of service were in accordance with WMATA's *Fatigue Risk Management Policy 10.6* and *Hours of Service Limitations for Prevention of Fatigue Policy 10.7*.

## **Post-Incident**

After reviewing the T/O's post-incident testing results, it was determined that the T/O was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/5, therefore, being under the influence of a controlled substance has been excluded as a contributing factor.

## **Weather**

At the time of the incident, the temperature was 81° F, and clear. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) – Location: Largo, MD.)

## **Findings**

- The T/O failed to follow the MSRPH rule that prohibits electronic device use when operating a revenue vehicle. Review of cab video revealed that the T/O was in possession of a SMART watch
- The T/O failed to operate the train in accordance with MSRPH rules that prohibit an operation that can result in a collision with another rail vehicle
- The T/O failed to perform Safety stops in accordance to MSRPH rules
- Based on the T/Os' statement and CENV data, the T/O disturbed the investigation scene by attempting to move the accident vehicles without permission from ROCC.

Based on salient facts as part of this investigation, CCTV, VMDS data, and CENV analysis, SAFE concludes the following:

1. The T/O failed to follow the MSRPH rule that prohibits electronic device use when operating a revenue vehicle. Review of cab video revealed that the T/O was in possession of a SMART watch
2. The T/O failed to operate the train in accordance with MSRPH rules that prohibit an operation that can result in a collision with another rail vehicle
3. The T/O failed to perform Safety stops in accordance to MSRPH rules
4. Based on the T/Os' statement and CENV data, the T/O disturbed the investigation scene by attempting to move the accident vehicles without permission from ROCC.

Therefore, SAFE is in concurrence with CENV data. The result of this event was due to a lack of adherence to MSRPH and not a result of a mechanical failure/anomaly.

## **Immediate Mitigation to Prevent Recurrence**

- The 7K 8-car and 3K 6-car consists were removed from service for post-incident inspection and subsequent VMDS, ER and CCTV download respectively
- The T/O was removed from service for post-incident testing
- RTRA developed an Operations Personnel Notice with an emphasis on the Importance of Safety Stops. **Completed August 23, 2019**
- CMNT personnel conducted repairs on the affected cars within both consists and was documented in Maximo Work Orders with a total cost, including parts and labor of \$10,953.00.

## **Corrective Actions**

1. RTRA shall develop an Operations Personnel Notice with an emphasis on the Importance of Safety Stops. **RTRA developed an Operations Personnel Notice on August 23, 2019, and distributed the notice to personnel for acknowledgment.**
2. RTRA re-distributed an Electronic Device Policy, dated June 13, 2019, to all RTRA personnel on September 9, 2019.
3. CENV shall create an engineering change order to replace the existing pillar-mounted articulating sun visor with the new roll-screen type. **CENV developed an Engineering Test Plan (ETP) to install roll-up sun-visors on 7k consist trains to prevent CCTV obstruction. Campaign tracked until completion.**



## Photos



Photo 1 – Position of consist post-incident