



## **WMSC Commissioner Brief: W-0041 – Collision in Shady Grove Yard Car Maintenance Shop January 4, 2020**

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

### **Safety event summary:**

Two 6000 Series railcars collided in the Shady Grove Yard Car Maintenance Shop on January 4, 2020 at 1:50 p.m.

The moving four-car consist was being operated from the third car after the train operator experienced issues with initial attempts to move the train from the regular position in the lead car. Another train operator was positioned in the lead car as a flag person.

Safety stops were not performed within the shop. The train moved 184 feet before the collision without proper safety stops.

As the train approached the stationary cars in the shop, the flag person communicated on the radio multiple times that the train operator should stop the train. The train operator later said they did not hear the transmissions, but no problems with the radios were found. The flag person did not activate emergency braking to stop the train.

The train collided with and coupled to the stationary car.

The investigation found that there was no communication between the Interlocking Operator and Car Maintenance about the train entering the shop being operated from the third car, and that there were other gaps in Metrorail policies and procedures regarding third-car operation.

For example, the investigation found car maintenance employees may have been able to resolve the issue to avoid third car operation, and the investigation found a lack of clear responsibilities for such train movement within a shop.

There were no reported injuries or significant damage.

### **Probable Cause:**

Metrorail's lack of clear procedures and requirements for third-car operation and lack of training on those procedures that do exist contributed to this collision.

### **Corrective Actions:**

Metrorail will revise the standard operating procedure governing railcar movement into a maintenance facility, revise the third-car operation training syllabus, and ensure as a fail-safe that car maintenance personnel are able to communicate through the rail car window with a train operator conducting third-car operation.

### **WMSC staff observations:**

Safety stops are not typically conducted within shop buildings when bringing in a single married pair of railcars due to third rail power connections, however safety stops could have been conducted in this circumstance since the entering consist was four cars rather than two.

**Staff recommendation:** Adopt final report.

**FINAL REPORT OF INVESTIGATION A&I E20007**

**SMS 20200107#85446**

<b>Date of Event:</b>	1/4/2020
<b>Type of Event:</b>	Collision
<b>Incident Time:</b>	13:50 hrs.
<b>Location:</b>	Shady Grove Yard, Car Maintenance Shop
<b>Time and How received by SAFE:</b>	14:28 hrs. – SAFE on Call Phone
<b>WMSC Notification Time:</b>	14:57 hrs. – WMSC On Call Phone
<b>Responding Safety Officers:</b>	WMATA SAFE: SAFE 2, SAFE 801 and SAFE 701 WMSC: No Other: No
<b>Rail Vehicle:</b>	Car 6066 (Stationary), Car 6011 (Striking), and Car 6054 (Third Car operation Rail Vehicle)
<b>Injuries:</b>	None
<b>Damage:</b>	No Damage
<b>Emergency Responders:</b>	RTRA and CMNT.

**Executive Summary**

On Saturday, January 4, 2020, at 14:28 hrs., the Rail Operations Control Center (ROCC) notified SAFE that at 13:50 hrs., a Shady Grove Division Interlocking Operator (I/O) reported that Rail Car 6011 collided with stationary Rail Car 6066 during a scheduled yard move into the Car Maintenance Service & Inspection (CMNT S&I) shop. Lead Car 6011 of an “out of service” consist was scheduled for corrective maintenance. At the time of the event, the consist was being operated from a cab position other than the front operating cab (“3<sup>rd</sup> Car” operation). The Train Operators (T/Os) were removed from service for post-incident testing and subsequent interview with SAFE personnel. This was a minor collision, and no damage was identified during post incident inspection. No injuries were reported as a result of this event.

## Incident Site

Shady Grove Yard, 7 South

## Field Sketch/Schematics



## Investigation

Non-Revenue Train ID 824, which included car 6011, arrived at Shady Grove Yard after being transported from Brentwood yard for a door and brake discrepancy. The train was initially stored on Track 18. Two (2) Shady Grove yard T/O's were instructed to move four (4) cars from Track 18 (6011-10x6054-55) into the shop. The cars experienced a problem moving from the lead car, which required operating from the 3<sup>rd</sup> car (6054). The T/O Flag Person (T/O F/P) aboard Car 6011 reported all safety stops were performed on approach to 7 South Track from 18 Track with no deviations from existing rules. Upon receiving authorization to enter the shop with qualified personnel in place, the T/O was instructed to operate no more than 3 MPH. The T/O F/P stated, approximately 10 feet away from the stopping location they communicated via radio for the T/O to "slow down". The CMNT Rail Vehicle Movement Team (RVMT) Primary PF/P corroborated these statements and confirmed hearing the transmission via radio. The PF/P stated, instructions were given to the T/O to stop; however, the train failed to stop, and lead car 6011 made contact and subsequently coupled to stationary Car 6066 positioned on 7

North Track. During interview with SAFE personnel, the T/O stated they did not hear radio communication to stop the train. The T/O further stated, once they no longer heard the proceed command, they stopped the train and attempted to contact the T/O F/P. When the T/O F/P failed to respond, the T/O notified Shady Grove I/O that they lost radio communication with the T/O F/P and stopped the train.

CMNT Supervisor notified the I/O of the event and redirected personnel accordingly. Upon arrival, CMNT and SAFE performed an inspection on both trains and did not find any damage resulting from the minor collision event. CMNT personnel performed an inspection of interior emergency intercom and car-borne radio, which determined there were no anomalies with equipment on cars 6011 or 6054.

Note: Based on interview with Interlocking Operator, there was no communication between them and the CMNT Supervisor related to 3<sup>rd</sup> car operation. There was no further information from CMNT Supervisor to substantiate or refute statement from Interlocking Operator.

### **Audio Recording System (ARS)**

A review of audio playback from the yard tower confirmed the T/O F/P's report of trying to communicate "stop" via radio multiple times.

### **Weather**

At the time of the incident, the temperature was 48°F, clear visibility with light rain. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) – Location: Shady Grove, MD.)

### **Communication Maintenance Department (COMM)**

COMM personnel performed radio checks in the affected area and did not find any anomalies. All radio checks were loud and clear, and the off-air Radio Frequency (RF) signals were transmitting at the correct levels.

### **Human Factors**

#### **Fatigue**

Based on SAFE's review of the T/O F/P and 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 F/P and T/O's post-incident toxicology testing results, it was determined that the 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.

## **Rail Transportation Quality Training**

Based on review of the training records:

### **Train Operator (T/O):**

T/O was trained on third car operation and received satisfactory assessment on April 2019, has been a WMATA employee since December 2005 and was initially certified as a T/O on May 2019

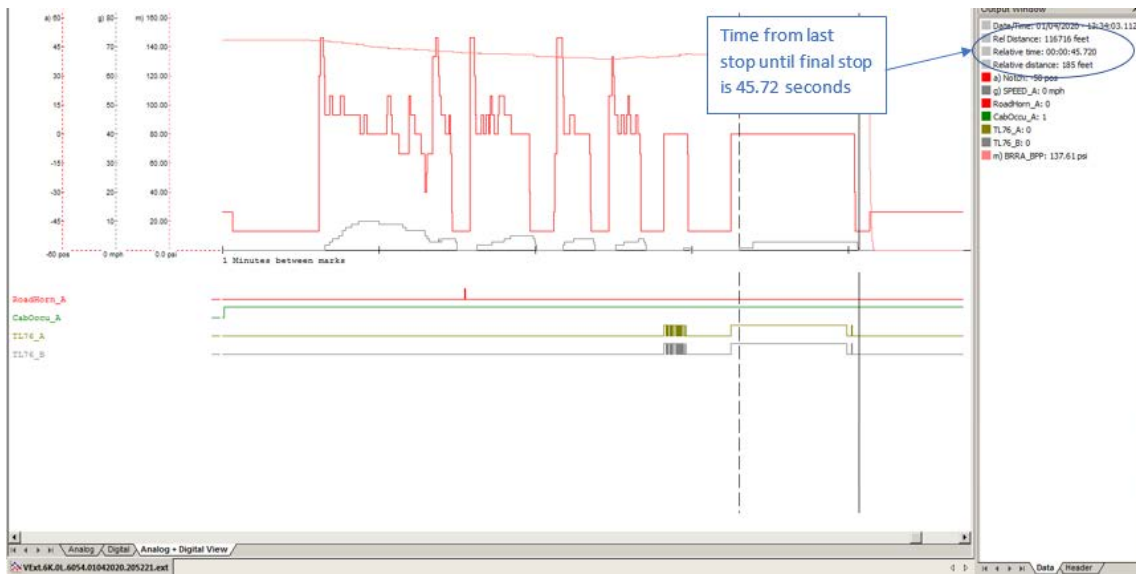
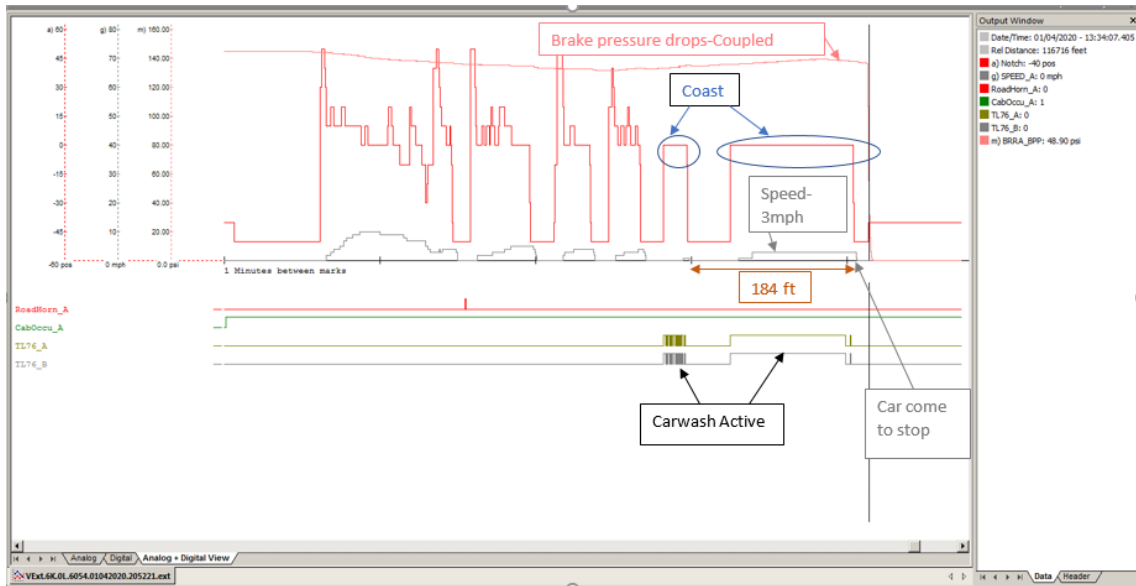
### **Train Operator Flag Person (T/O F/P):**

T/O was trained on third car operation and received satisfactory assessment on August 2008, has been a WMATA employee since July 2007 and was initially certified as a T/O on October 2008.

## **Vehicle Program Services (CENV)**

Vehicle Monitoring System (VMS) data revealed the following:

1. Speeds did not exceed three (3) mph
2. The train did not make any safety stops inside the S&I shop (Approximately 184 ft.)
3. Coast to Car Wash was the operating mode during the entire movement within the shop while under third car operation.



## Findings

- Audio Playback revealed, the I/O did not communicate intentions to use third car proceed method operations into 7 South with CMNT supervision
- Review of Standard Operating Procedures (SOP) governing third car operations and railcar movement procedures identified that the roles and responsibilities of CMNT/RTRA personnel were not in compliance with the procedures outlined in the SOP
- RTRA personnel moved a train under third car operation procedures that possibly could have operated independently with CMNT assistance

- Yard radio system was functioning properly based on COMM post incident inspection of system
- Train failed to make safety stops after entering the shop based on VMS data analysis provided by CENV

## **Conclusion**

Based on the salient facts provided by CENV Audio Playback, and COMM radio analysis, SAFE concludes:

1. The Class I vehicle operator did not perform safety stops on approach to the stationary vehicle in the shop
2. The T/O F/P did not relay radio communication of the Proceed method to the Rail Vehicle operator in accordance with rules and procedures
3. The T/O failed to stop the Rail Vehicle once radio communication was reportedly lost
4. The F/P did not activate the emergency stop pushbutton when the train failed to stop
5. The CMNT supervision failed to provide oversight during third car operation move to ensure procedures were followed in accordance with SOP 12
6. There was no communication between I/O and the CMNT Supervisor to coordinate 3<sup>rd</sup> car operation per SOP 12
7. Rail Operation Quality Training (ROQT) third car operation training syllabus did not reflect the roles and responsibilities of RTRA personnel while entering a maintenance facility.

## **Corrective Actions**

1. RTRA shall revise SOP 12 rules and procedures to reflect roles and responsibilities of T/O personnel when moving a class 1 vehicle into a maintenance facility
2. ROQT shall revise the Proceed Method (Third Car Operation) training syllabus in accordance with SOP 12 rules and procedures when entering a maintenance facility
3. CMNT shall revise SOP 12 to reflect personnel are in a position to communicate with the T/O performing third car operation into the maintenance facility through operator window as a radio fail-safe precaution.



## Photos



Photo 1 – Car 6011 and Car 6066 after minor collision event

## Attachments

ORACLE

### Class Progress

## TRAIN OPERATOR RE-INSTRUCTION

TRAIN OPERATOR, RTRARSTO

★★★★★ (0)

You can view the Schedule, Grades and Attendance, Notes and Attachments, Payment Details and Approvals associated with the Class by selecting the corresponding links. You can view the Class Details by selecting the Class Name and view the progress of a Learning Component by selecting the corresponding Learning Component Name.

Class Code	OPRRREM-20200115ILTA	Class Name	TRAIN OPERATOR RE-INSTRUCTION
Type	Classroom	Contact	--
Price Per Seat	--	Drop Charge	--
Enrollment Status	Completed	Confirmation Number	1702649
Start Date	01/15/2020	End Date	01/15/2020
Last Enrollment Date	--	Last Drop Date	--
		Duration	8 Hrs

[Progress](#) [Schedule](#) [Grades and Attendance](#) [Notes and Attachments](#) [Payment Details](#) [Approvals](#)

### Class Progress

Progress	Completed	Grade	Not Graded
Passing Status	Pass	Comments	

### Class Syllabus

You must complete this class by 01/15/2020.

To receive credit for this class you must complete all required tasks.

- [TRAIN OPERATOR RE-INSTRUCTION](#) [View Schedule and Locations](#)  
Required Sessions  
Progress Completed

## Attachment 1: T/O Reinstruction Training Record

Date: 1/4/2020 Time: 13:50 hrs.  
Final Report - Collision (Minor) Rev.01  
E20007

Drafted By: SAFE 704 – 02/04/2020  
Reviewed By: SAFE 701 – 02/22/2020  
Approved By: SAFE 70 – 03/04/2020

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Class Progress


**TRAIN OPERATOR RE-INSTRUCTION**

██████████ TRAIN OPERATOR, RTRARSTO ██████████  
 ★★★★★ (0)

You can view the Schedule, Grades and Attendance, Notes and Attachments, Payment Details and Approvals associated with the Class by selecting the corresponding links. You can view the Class Details by selecting the Class Name and view the progress of a Learning Component by selecting the corresponding Learning Component Name.

<b>Class Code</b> OPRROREM-20200116ILTA	<b>Class Name</b> <u>TRAIN OPERATOR RE-INSTRUCTION</u>
<b>Type</b> Classroom	<b>Contact</b> --
<b>Price Per Seat</b> --	<b>Drop Charge</b> --
<b>Enrollment Status</b> Completed	<b>Confirmation Number</b> 1702664
<b>Start Date</b> 01/16/2020	<b>End Date</b> 01/16/2020
<b>Last Enrollment Date</b> --	<b>Last Drop Date</b> --
	<b>Duration</b> 8 Hrs

[Progress](#) [Schedule](#) [Grades and Attendance](#) [Notes and Attachments](#) [Payment Details](#) [Approvals](#)

Class Progress	
<b>Progress</b> Completed	<b>Grade</b> Not Graded
<b>Passing Status</b> Pass	<b>Comments</b> 

**Class Syllabus**

You must complete this class by 01/16/2020.  
 To receive credit for this class you must complete all required tasks.

- 1 [TRAIN OPERATOR RE-INSTRUCTION](#) [View Schedule and Locations](#)
- Required Sessions
- Progress Completed

Attachment 2: T/O F/P Reinstruction Training Record