

WMSC Commissioner Brief: W-0096 – Collision – Greenbelt Rail Yard Storage Tracks – March 9, 2021

Prepared for Washington Metrorail Safety Commission meeting on August 3, 2021

Safety event summary:

A ballast regulator collided with a tamper vehicle in the storage tracks of the Greenbelt Rail Yard, causing minor damage to a light assembly.

The Equipment Operator who was moving the ballast regulator was attempting to move multiple roadway maintenance machines (RMMs) to reach a different RMM that they needed for their work assignment that night but that was stored behind the other vehicles. The Equipment Operator left the ballast regulator without setting the handbrake as the operator planned to return to the vehicle, and the vehicle continued to move. The ballast regulator rolled approximately two feet into the tamper vehicle.

A supervisor reported this collision to Metrorail's Safety Department, but did not report the collision to the Interlocking Operator in the yard tower, Maintenance Operations Center (MOC) or Rail Operations Control Center (ROCC).

The investigation identified that Metrorail was not following communication procedures for vehicle movement in portions of rail yards that do not have signals or other automatic train control systems. Operators of RMMs are not communicating with the Interlocking Operator for movements in this area, creating, among other things, the risk of collisions with other vehicles or personnel.

The investigation also identified that Metrorail was not following any safety procedures requiring separation between stored RMMs. Metrorail stated there is an "informal requirement" for 10 feet of separation, but Metrorail does not require that separation or provide supervisory oversight to ensure vehicles are properly positioned in a safe manner. In part, this investigation suggests that the lack of requirements and oversight are due to the high number of vehicles Metrorail attempts to store in the limited space available in storage tracks.

Probable Cause:

The probable cause of this event was Metrorail's lack of training on and specific rules related to rail vehicle and switch movement in non-signalized territory, a lack of controls on, communication about, and oversight of movement in non-signalized territory, and a lack of controls on and oversight of storage of roadway maintenance machines. Contributing to this event was a lack of vehicle storage and a lack of vehicle storage planning to ensure that vehicles required for work are available without the need for equipment operators to unexpectedly move other vehicles.

Corrective Actions:

In accordance with the corrective action plan required in response to the WMSC's April 30, 2021 finding, Metrorail is reviewing policies, rules procedures related to the storage of RMMs in rail yards.

Metrorail distributed a lessons learned document focused on the parking and storage of RMMs.

The equipment operator received general RMM refresher training.



WMSC staff observations:

The WMSC issued findings requiring corrective action plans on April 30, 2021 related to radio communications in rail yards and uncoordinated movement and vehicle storage in non-signalized or "dark" territory. The WMSC has approved corrective action plans for implementation.

As part of the Roadway Maintenance Machine (RMM) Audit issued in March 2021, the WMSC also issued findings related to the need for adequate training on each rail vehicle an employee may operate. The WMSC has approved Metrorail's CAPs related to this audit for implementation.

Metrorail's significantly improved fatigue analysis process, which is included in this report, demonstrates that although fatigue likely did not play a role in this event, the assigned shift did carry an increased risk of fatiguerelated safety concerns later in the scheduled work period if this event had not occurred, and identified similar risks on multiple shifts in the preceding weeks. WMATA has an open CAP related to its insufficient fatigue policy, and other aspects of the program are expected to be addressed in the Fitness for Duty Audit. The report was transmitted to WMATA in July for a 30-day technical review as provided in the WMSC Program Standard.

Staff recommendation: Adopt final report.



Washington Metro Area Transit Authority

Department of Safety and Environmental

Management (SAFE)

FINAL REPORT OF INVESTIGATION A&I E21102

Date of Event:	03/09/2021			
Type of Event:	Collision Between Two or More Rail Transit Vehicles			
Incident Time:	21:50 hours			
Location:	Greenbelt Yard, Storage Tracks			
Time and How received by SAFE:	22:08 hours, SAFE On-Call Phone			
WMSC Notification Time:	23:24 hours			
Rail Vehicle:	Ballast Regulator (BR01), Tamper (T004)			
Injuries:	None			
Damage:	Locomotive Light Assembly, \$151.12			
SMS I/A Incident Number:	20210310#92222			

Greenbelt Yard – Collision Between Two or More Rail Transit Vehicles

Incident Date: March 9, 2021

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Abbreviations and Acronyms

ARS	Audio Recording System			
ATC	Automatic Train Control			
САР	Corrective Action Plan			
СТЕМ	Car and Track Equipment Maintenance			
I/A	Incidents/Accidents			
MSRPH	Metrorail Safety Rules and Procedures Handbook			
MOC	Maintenance Operations Control			
NOAA	National Oceanic and Atmospheric Administration			
RMM	Roadway Maintenance Machine			
ROCC	Rail Operations Control Center			
SAFE	Department of Safety and Environmental Management			
SMS	Safety Measurement System			
SRC	Safety Risk Coordinator			
TRST	Office of Track and Structures			
WMATA	Washington Metropolitan Area Transit Authority			
WMSC	Washington Metrorail Safety Commission			

Washington Metropolitan Area Transit Authority

Department of Safety & Environmental Management

Rev.1 Drafted By: SAFE 702 – 07/20/2021 Rev.1 Reviewed By: SAFE 70 - 07/22/2021 Rev.1 Approved By: SAFE 70 - 07/22/2021

Executive Summary

On Tuesday, March 9, 2021, at approximately 21:50 hours, a Track and Structures (TRST) Equipment Operator was moving a Ballast Regulator 01 (BR01) and made contact with Tamper 004 (T004) on the Maintenance Storage Track in the Greenbelt Yard. The TRST Supervisor notified the Department of Safety and Environmental Management (SAFE) of the collision involving two Roadway Maintenance Machines (RMM) at approximately 22:08 hours. Onsite inspection of the equipment revealed minimal damage to the light lens on the rear of T004. TRST Management removed the Equipment Operator from service for post-incident toxicology testing. SAFE personnel responded to the scene to assist with the investigation and notified the Rail Operations Control Center (ROCC) of the accident. No injuries were reported as a result of this accident.

The Equipment Operator reported Class 2 vehicle operators do not communicate with the Interlocking Operator to reposition RMM vehicles on the storage tracks that are not governed by Automatic Train Control (ATC) equipment. The Equipment Operator stated they were positioning maintenance rail vehicles closer than 10 feet of separation due to the number of vehicles being stored in the maintenance tracks and limited space. Note that there is no storage distance requirement for Class 2 vehicles.

Car and Track Equipment Maintenance (CTEM) personnel performed a post-incident inspection on BR01 and T004. CTEM personnel inspected and replaced the damaged light assembly for T004 on March 12, 2021. CTEM personnel inspected BR01 and found no damages or issues with the rail maintenance vehicle. In addition, CTEM personnel found a headlight nonoperational on BR01 and it was replaced. BR01 was placed back in service and the work order was completed on March 25, 2021.

The probable cause was a lack of storage track space and procedures to properly store Class 2 vehicles within the rail yards, including identifying the appropriate distance separating stored units. A contributing factor was the handbrake not being set prior to the Operator exiting the rail vehicle. This is required per Metro Safety Rules and Procedures Handbook (MSRPH), SOP #17 – 17.5.3.6 – "The Operator shall initially secure the class 2 rail vehicle(s) with one operational set of handbrakes or the parking brake after positioning the vehicle(s) on the storage tracks."

Incident Site

Greenbelt Yard, Storage Tracks



Approximate accident location

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:

- Physical Site Assessment
- Formal Interviews SAFE interviewed one individual as part of this investigation. Interviews include 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:
 - TRST Equipment Operator.
- Documentation Review A collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
 - TRST Equipment Operator Training Records
 - TRST Equipment Operator Certifications

- TRST Equipment Operator 30-Day work history review •
- Metrorail Safety Rules and Procedures Handbook (MSRPH) •
- National Oceanic Atmospheric Administration (NOAA) •
- Rail Operations Control Center (ROCC) Incident Report •
- Maximo Data •
- System Data Recording Review A collection of information contained in Metro Data Recording Systems. This data includes:
 - ARS (Audio Recording System) playback [Landline Communications]

Investigation

At approximately 21:50 hours, a TRST Equipment Operator operating RMM BR01 had a slow speed collision with unoccupied RMM T004 resulting in minimal damage. The Equipment Operator was attempting to move RMMs within the Greenbelt Yard to retrieve another RMM for their night job assignment. The TRST Equipment Operator exited BR01 without setting the handbrake, and subsequently drifted two feet making contact with T004 causing minor damage to the light lens. The TRST Supervisor contacted SAFE at approximately 22:08 hours, and SAFE responded to the scene. SAFE reported the accident to ROCC at approximately 22:54 hours. TRST Management removed the TRST Equipment Operator from service for post-incident testing. No injuries were reported as a result of this accident.

Chronological Event Timeline

Time	Description
21:50 hrs.	TRST Employee: TRST Employee operating BR01 made contact with T004 while making rail vehicle moves within the Greenbelt Yard.
22:08 hrs.	<u>TRST Supervisor</u> : TRST Supervisor notified SAFE of a collision occurring in the Greenbelt Yard between two RMMs.
22:54 hrs.	<u>ROCC</u> : Received report from SAFE stating a collision occurred in the Greenbelt Yard at approximately 21:50 hours between RMM BR01 and RMM T004. The accident location was on the maintenance yard leads adjacent to the hand switch. There was minor damage to T004, and no injuries were reported. ROCC notified all concerned personnel, including CTEM.
22:57:37 hrs.	<u>MOC:</u> MOC received information about the accident at Greenbelt Yard. TRST Supervisor reports the operator's name, employee ID, and the vehicles involved in the accident. [Landline]

ARS playback disclosed that a TRST Supervisor reported a collision between BR01 and T004 in the Greenbelt Yard to Maintenance Operations Control (MOC).

Car and Track Equipment Maintenance (CTEM)

CTEM personnel performed a post-incident inspection on BR01 and T004. CTEM personnel inspected and replaced the damaged light assembly for T004 on March 12, 2021. CTEM personnel inspected BR01 and found no damage or issues with the rail maintenance vehicle related to the collision. In addition, CTEM personnel found a headlight nonoperational on BR01

and it was replaced. BR01 was placed back in service and the work order was completed on March 25, 2021.

Interview Findings

The Equipment Operator was formally interviewed via Microsoft Teams, which included the SAFE investigation team, relevant Metro management and representatives from the WMSC. The interview conducted identified the following key findings associated with this event:

The Equipment Operator reported Class 2 vehicle operators do not communicate with the Interlocking Operator to reposition RMM vehicles on the storage tracks that are not governed by Automatic Train Control (ATC) equipment.

The Equipment Operator stated they are positioning maintenance rail vehicles closer than the recommended 10 feet of separation due to the number of vehicles being stored in the maintenance tracks and limited space.

<u>Findings</u>

- BR01 and T004 are Class 2 maintenance rail vehicles.
- The Equipment Operator was last certified to operate a Class 2 vehicle on August 8, 2020.
- The Equipment Operator did not secure the handbrake before they exited their maintenance rail vehicle. This action was not in compliance with MSRPH SOP #17 17.5.3.6 "The Operator shall initially secure the class 2 rail vehicle(s) with one operational set of handbrakes or the parking brake after positioning the vehicle(s) on the storage tracks."
- Class 2 operators do not communicate with the Interlocking Operator to reposition RMM vehicles on the storage tracks that are not governed by ATC equipment.
- TRST personnel modified the accident scene by moving the units prior to SAFE's arrival without approval.
- Class 2 vehicles do not have a written procedure to properly park the vehicles with the yards' storage tracks.

<u>Weather</u>

At the time of the incident, NOAA recorded the temperature at 46° F, no wind, clear skies with visibility of 10 miles. Based on findings, weather was not a contributing factor in this incident (Weather source: NOAA – Location: Greenbelt, MD.)

Human Factors

<u>Fatigue</u>

<u>Signs and Symptoms of Fatigue:</u> The incident data was evaluated for signs and symptoms of fatigue that may have been present at the time of the incident. The Equipment Operator reported feeling fully alert at the time of the incident and reported experiencing no symptoms of fatigue in the time leading up to the incident.

<u>Fatigue Risk:</u> The incident data was evaluated 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; however, the Equipment Operator reported some variation in the sleep schedule in

the days leading up to the incident. The variations in sleep were reported due to working both day and night shifts throughout the week. The Equipment Operator was awake for approximately three hours at the time of the incident. The preceding off-duty period was 15 hours long, which provides an opportunity for 7-9 hours of sleep. The Equipment Operator reported seven and half hours of sleep in the 24 hours preceding the incident. This was a comparable amount to the Equipment Operator's usual workday sleep durations. The Equipment Operator reported no issues with sleep.

Since fatigue risk factors were present, a biomathematical fatigue modeling application (SAFTE-FAST WebSFC) was used to further evaluate fatigue risk factors that may have been present in the Equipment Operator's schedule. The analysis was based on the Equipment Operator's work schedule, bed and wake times from the day before the incident and reported habitual sleep durations. The estimated performance effectiveness at the time of the incident was 87%. Based on the analysis, two factors may have contributed to an increased risk of fatigue at the time of the incident: the employee slept less than 8 hours in the 24 hours leading up to the incident and (2) the employee's night work and daytime sleep contribute to a circadian misalignment that increases the risk of fatigue.



Figure 1 - Modeling analysis output shows estimated performance effectiveness during the incident work shift, based on the employee work and reported sleep schedule. The dotted line is the incident time. Fatigue factors are identified in the inset table.

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Figure 2 - Modeling analysis output shows estimated performance effectiveness in the month leading up to the incident, based on the employee work and reported sleep schedule.



Figure 3 - Modeling analysis output shows estimated performance effectiveness in the month leading up to the incident, based on the employee work and reported sleep schedule. Fatigue factors are identified in the inset table.

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

Probable Cause Statement

The probable cause was a lack of storage track space and procedures to properly store Class 2 vehicles within the rail yards, including identifying the appropriate distance separating stored units. A contributing factor was the handbrake not being set prior to the Operator exiting the rail vehicle. This is required per Metro Safety Rules and Procedures Handbook (MSRPH), SOP #17 – 17.5.3.6 – "The Operator shall initially secure the class 2 rail vehicle(s) with one operational set of handbrakes or the parking brake after positioning the vehicle(s) on the storage tracks."

SAFE Recommendations/Corrective Actions

The following are the recommendations and corrective actions identified as a result of this investigation and associated root cause evaluation (Appendix F). These recommendations are tracked using WMATA's Safety Measurement System Incidents/Accidents (SMS I/A) Module and are verified by SAFE upon completion. The responsible department is identified in the corrective action code, and the respective departmental Safety Risk Coordinator (SRC) will manage the mitigation. Refer to the SMS I/A Module for additional information.

Corrective Action ID	Description	Responsible Party	Due Date
92222_SAFECAPS_ TRST_001	(RC-1) Review policies and procedures governing the storage of TRST Class 2 vehicles within all rail yards. Assess whether equipment can be strategically stored based on scheduled activities. Work with other departments that store Class 2 vehicles in yards to develop storage requirements similar to Class 1 vehicles, including securement and separation distances.	TRST SRC	07/01/2021
92222_SAFECAPS_ TRST_002	(CF-1) Produce a Lessons Learned with focus on parking rail maintenance vehicles.	TRST SRC	04/15/2021
92222_SAFECAPS_ TRST_003	(CF-1) Schedule and ensure the Equipment Operator completes refresher training on Class 2 vehicle operation.	TRST SRC	06/15/2021

Appendix A – Interview Summary

Equipment Operator

This employee is a WMATA Equipment Operator with ten years of experience as an Equipment Operator, one year of service as a Track Laborer, and two years of service as a Track Repairman. The TRST Equipment Operator's last certification was on August 8, 2020, and they have no history of sleep issues to report.

Based on the SAFE interview, the TRST Equipment Operator reported their assignment was to retrieve the RMM that was stored behind other maintenance rail vehicles on the storage track. TRST Equipment Operator stated they were operating BR01 and attempted to store it adjacent to T004. As they exited BR01, the Equipment Operator stated they noticed that BR01 continued to move and witnessed it making contact with T004. The employee reported they realized they did not set the parking brake before they exited BR01. TRST Equipment Operator reported they were not distracted during the accident and "just made a mistake." When asked about the procedures for storing maintenance vehicles in the Greenbelt Yard, the Equipment Operator stated due to the number of vehicles being stored in the maintenance tracks and limited space, they are positioning maintenance rail vehicles closer than the required 10 feet of separation. (Note that 10 feet of separation is an informal requirement and is not documented.)

Appendix B – Incident Photos



Photo #1 – T004 displaying damaged light assembly.



Incident Date: 03/09/2021 Time: 21:50 hours Final Report – Collision Between Two or More Rail Transit Vehicles E21102
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Photo #3 – T004 damaged light assembly (bottom view).



Photo #4 – T004 damaged light assembly (front view).

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Appendix C – Maximo Data – T004

M		Was Ma	hingtor iintenan	ce and M Work	olitan Area aterial Mar Order Det	a Transit A nagement : tails	Authority System	/		Page 1	of 1 MX76PROE
Work Order #: 1620 Type: CM	8834								Stat 03/1	us: COMP 2/2021 13:0	7
Work Des Job Plan Des	cription: cription:	Repair damage subs	stained fro	m BR01							
				3	Work Informat	tion					
Asset:	MT004	T004, TAMPER, PLASSER	R, 4x4, S/N 34	134	Owning Offi	ce: CMNT-CMNT-	CMNT		Par	ent:	
Asset Tag:	MT004				Maintenance Offi	ce: CTEM-GBLT-H	IVYR		Create D	ate: 03/10/202	1 02:11
Asset S/N:	3434				Labor Gro	up: CTEM-NCAR-	HVY		Actual S	tart: 03/10/202	1 02:27
Location:	1437	E99, GREENBELT YARD			Cre	ew:			Actual Co	mp: 03/12/202	1 13:07
Work Location:	2976	E91, GREENBELT YARD, BUILDING (D) FIELD BASE PLNT, 1ST FLOOR, CTEM SHOP			Le	ad:			Item: CTEM49200019		00019
Failure Class:	CTEM001	GENERAL			GL Accou	int: WMATA-02-33	380-50499070-	041-******************	OPR**		
Problem Code:	2424	N/A CODE (GENERAL SY	(MPTOM)		Supervis	ior:			Target S	tart:	
Requested By:					Requestor Pho	ne:			Target Co	mp:	
Chain Mark Start:					Chain Mark E	nd:			Scheduled S	tart:	
Create-Mileage:	0.0				Complete-Milea	ge: 0.0					
Task IDs											
Task ID											
10 Inspect and	repair light	assembly									
inspected and	d repaired the	light. Post inspection form attac	ched.								
Component: 000-400-AC	A BODY S	STEM; TAMPER FLEET	Wo	rk Accomp: INS	PECTED	Reason: INS	SPECTION	Status: COMP	Position:	Warr	anty?: N
Planned Materials											
Task ID Item	Descript	tion					S	toreroom Issue Unit	Quantity	Unit Cost	Line Cos
R62400004	LAMP: S	EALED BEAM,30V (FITS A	LL LEGACY	AND 7K FLEETS	5)			251 EA	1	\$9.26	\$9.2
									Total Plann	ned Materials:	\$9.2
Actual Labor											
Task ID Labor				Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Co
10				03/10/2021	03/10/2021	06:15	08:00	Y	01:45	00:00	\$69.4
10				03/10/2021	03/10/2021	06:10	08:00	Y	01:50	00:00	\$72.4
							То	tal Actual Hour/Labor:	03:35	00:00	\$141.8
Failure Reporting											
Cause			Remedy				Supervisor			Rema	rk Date
1025 ACCIDENT	COLLISIO	N/DERAIL	0004	REPLACED						03/12	/2021
Remarks: Replaced rea	ar locomotive	light assembly.									

WT_plust_woprint.rptdesign

Document #1 – WO #16208834 displaying total work completed and damage costs for RMM T004.

Appendix C – Maximo Data – BR01

Work Order #: 16208808 Status: CLOSE 03/25/2021 10:19 Work Description: inspect for damage, unit hit T004 Job Plan Description: Status: CLOSE 03/25/2021 10:19 Work Description: BR01, BALLAST REGULATOR, KNOX Work Information Parent: Marine anne Office: CTEM-ALEX-HVR Create Date: 03/10/2021 1 Asset: MBR01 BR01, BALLAST REGULATOR, KNOX Owning Office: CMMT-CMNT-CMNT Parent: KERSHAW, KER-8003, 013-800-36 Owning Office: CTEM-ALEX-HVR Create Date: 03/10/2021 1 Location: 1213 C09, ALEXANDRIA YARD Labor Group: CTEM-ALEX-HVR Create Date: 03/10/2021 1 Work Location: 2976 EPI: OREENAL Symperior: Target Stat: Problem Code: 2424 NA CODE (GENERAL SYMPTOM) Requestor Phone: Target Stat: Requested By: Create-Mileage: 0.0 Target Stat: Target Comp: Chaim Mark Edit: Scheduled State: Scheduled State: Component: 000-400-400 CTEM_BALLAST REGULATOR Work Accomp: INSPECTED 10 Inspect for damage BR01 In T004 Insealing two onder Mark Insealings Status: CLOSE Position: Warkator 2010 Component: 000-400-AL0 CTEM_BALLAST REGULATOR Work Accomp: INSPECTED Reason: INSPECTION<	M		Washin Mainte	gton M enance	Metrop e and N Work	olitan Area laterial Ma	a Transit A nagement S tails	uthority System			Page 1	of 1 MX76PROD
Work Description: inspect for damage, unit hit T004 Job Plan Description: Work Information Asset: MBR01 Regulator REGULATOR KNOX KERSHAW, KBR-900-3, 013-900-96 Asset Tag: MBR01 Parent: KERSHAW, KBR-900-3, 013-900-96 Maintenance Office: CTEM-ALEX-HVYR Create Date: 031/02201 (Labor Group: CTEM-ACR-HVY Actual Stat: 031/02201 (Labor Group: CTEM-ALEX-HVYR Create Date: 031/02201 (Create-Mileage: 0.0 Target Start: Create-Mileage: 0.0 Create-Mileage: 0.0 Create-Mileage: 0.0 Create-Mileage: 0.0 Create-Mileage: 0.0 Create-Mileage: 0.0	Work Ord Type: CM	er #: 16208808								Stat 03/2	us: CLOSE 5/2021 10:1	9
Work Information Work Information Asset: MBR01 BR01, BALLAST REGULATOR, KNOX KERSHAW, KBR-800-3, 013-900-96 Owning Office: CMNT-CMNT Parent: Asset Tag: MBR01 Create Date: 03/10/2021 I Asset SR: 013-900-96 Maintenance Office: CTEM-ALEX-HVYR Create Date: 03/10/2021 I Actual Start: 03/10/2021 I Labor Group: CTEM-NCAR-HVY Actual Start: 03/10/2021 I Mork Location: 237 Work Location: 2976 E61, GREENBELT YARD, BULDING (D) FIELD BASE PLINT, IST FLOOR, CTEM SHOP Lead: Item: CTEM-9200 Failure Class: CTEMOID GENERAL GL Account: WMATA-02-33380-50499070-041.******	lok	Work Description:	inspect for damage, unit	t hit T004	L .							
Work Information Asset: MBR01 BR01, BLLLAST REGULATOR, KNOX KERSHAW, KBR-900-3, 013-900-96 Owning Office: CIMNT-CMNT-CMNT-CMNT Parent; Asset: Tag: MBR01 Maintenance Office: CIMNT-CMNT-CMNT Create Date: 03/10/20211 Asset: Sth: 013-900-96 Maintenance Office: CTEM-ALEX.HVYR Create Date: 03/10/20211 Location: 1213 C99, ALEXANDRIA YARD Crew: Actual Stati: 03/10/20211 Work Location: 2976 E91, GREENBELT YARD, BUILDING (D) FELD BASE PLVT, IST FLOOR, CTEM SHOP Lead: Target Stati: Problem Code: 2424 N/A CODE (GENERAL SHOP GL Account: VMATA-02-33380-50499070-041-**********************************	501	o Plan Description.										
Asset: MBR01 BALLAST REGULATOR, KNOX KERSHAW, KBR-900-3, 013-900-96 Owning Office: CMNT-CMNT-CMNT Parent: Asset Tag: MBR01 Maintenance Office: CTEM-ALEX-HVYR Create Date: 03/10/20211 Asset SN: 013-900-96 Labor Grupp: CTEM-MCAR-HVY Actual Stat: 03/10/20211 Asset SN: 013-900-96 Labor Grupp: CTEM-MCAR-HVY Actual Stat: 03/10/20211 Mork Location: 121 C99, ALEXANDRIA YARD Crew: Actual Stat: 03/10/20211 Work Location: 2976 E91: GREENBELT YARD, BUILDING (D) FIELD BASE PLNT, IST FLOOR, CTEM SHOP Labor Grew: Actual Stat: 03/10/2021 Failure Class: CTEMMERCOM: WMATA-02-33380-50499070-041-**********************************						Work Information	tion					
Asset Tag: MBR01 Maintenance Office: CTEM-ALEX-HVYR Create Date: 03/10/20211 Asset SiN: 013-900-96 Labor Group: CTEM-NCAR-HVY Actual Start: 03/10/20211 Work Location: 297,6 E91, GREENBELT YARD, BUILDING (D) FIELD BASE PLNT, 1ST FLOOR, CTEM SHOP Lead: Item: CTEM49202 Problem Code: 2424021 Item: CTEM49203 Target Start: Target Start: Requested By: Create-Mileage: Target Comp: Chain Mark End: Scheduled Start: Chain Mark Start: Chain Mark End: Scheduled Start: Complete-Mileage: 0.0 Task ID 10 Inspect for damage Scheduled Start: Scheduled Start: 3/10/2011 08/068- Inspect for damage Start Date Field Date Start: Work Accomp: INSPECTED Task ID 10 Inspect for damage Start Date Field Date: Work Accomp: INSPECTED 10 Inspect for damage Start Date End Date Start Time End Time Approved? Hours Hours 10 Inspect for damage Start Date End Date Start Time End Time Approved? Hours Hours 10 O3/10/2021 03/10/2021 03/10/2021 08:00 11:00 Y 03:00 00:00 <t< td=""><td></td><td>Asset: MBR01</td><td>BR01, BALLAST REGULATOR KERSHAW, KBR-900-3, 013-90</td><td>KNOX 10-96</td><td></td><td>Owning Off</td><td>ce: CMNT-CMNT-C</td><td>CMNT</td><td></td><td>Par</td><td>ent:</td><td></td></t<>		Asset: MBR01	BR01, BALLAST REGULATOR KERSHAW, KBR-900-3, 013-90	KNOX 10-96		Owning Off	ce: CMNT-CMNT-C	CMNT		Par	ent:	
Asset SN: 013-900-96 Labor Group: CTEM-NCAR-HVY Actual Statt: 03/10/22011 Location: 1213 CG9 ALEXANDRIA YARD Crew: Actual Comp: 03/24/2021 Work Location: 1297 E91, GREENBELT YARD, BUILDING (D) FIELD BASE PLNT, 1ST FLOOR, CTEM SHOP Lead: Item: CTEM4920E Failure Class: CTEM001 GENERAL GL Account: WMATA-02-33380-50499070-041-*********-OPR** Target Start: Target Start: Problem Code: 2424 N/A CODE (GENERAL SYMPTOM) Supervisor: Target Comp: Requestor Phone: Target Comp: Chain Mark Start: Scheduled Start: Create-Mileage: 0.0 Complete-Mileage: 0.0 Scheduled Start: Scheduled Start: 10 Inspect for damage BR0 1hit T004 breaking the locomotive light on T004, Tagged out BR01 for further inspecton of unit 3/10/21 OgieRoss - Inspected unit thoroughly and no damage found. Replaced front headlight which was inop Component: 00/400-ALO CTEM_BALLAST REGULATOR Work Accomp: INSPECTED Reason: INSPECTION Startus: CLOSE Position: Warrar Actual Labor Start Date End Date Start Time End Time Approved? Hours Hours 10 03/10/2021 03/10/2021 03/10/2021 03/00 00:00 00:00 00:00 00:00 </td <td></td> <td>Asset Tag: MBR01</td> <td></td> <td></td> <td></td> <td>Maintenance Off</td> <td>ce: CTEM-ALEX-H</td> <td>VYR</td> <td></td> <td>Create D</td> <td>ate: 03/10/202</td> <td>21 01:38</td>		Asset Tag: MBR01				Maintenance Off	ce: CTEM-ALEX-H	VYR		Create D	ate: 03/10/202	21 01:38
Location: 1213 C09, ALEXANDRIA YARD Crew: Actual Comp: 302/4/2021 Work E91, GREENBELT, YARD. BUILDING (D) FIELD BASE PLNT, 1ST FLOOR, CTEM SHOP Lead: Item: TEM49200 Failure Class: CTEM01 GENERAL GL Account: WMATA-02-33380-50499070-041-**********************************		Asset S/N: 013-900-96				Labor Gro	up: CTEM-NCAR-H	IVY		Actual S	tart: 03/10/202	21 02:11
Work Location: 2976 E91, GREENBELT YARD, BUILDING (D) FIELD BASE PUNT, 1ST FLOOR, CTEM SHOP Lead: Item:: CTEM4920C Failure Class: CTEM01 GENERAL GL Account: WMATA-02-33380-50499070-041-******-OPR** Target Start: Problem Code:: 4242 N/A CODE (GENERAL SYMPTOM) Supervisor: Target Comp: Requested By: Chain Mark Start: Chain Mark End: Scheduled Start: Create-Mileage: 0.0 Complete-Mileage: 0.0 Target Comp: Target Start: Task ID 10 Inspect for damage BR01 hit T004 breaking the locomotive light on T004, Tagged out BR01 for further inspection of unit 3/10/21 Ogle/Ross - Inspectod unit thoroughly and no damage found. Replaced from theadlight which was inop Reason: INSPECTION Status: CLOSE Position: Warrar Actual Labor Start Date End Date Start Time End Time Approved? Hours Hours Hours 10 Inspect for damage 03/10/2021 03/10/2021 08:00 11:00 Y 03:00 00:00 2010 10 03/10/2021 03/10/2021 08:00 11:00 Y 03:00 00:00 10 03/10/2021 03/10/2021 08:00 1		Location: 1213	C99, ALEXANDRIA YARD			Cr	ew:			Actual Co	mp: 03/24/202	21 15:25
Failure Class: CTEM001 GENERAL GL Account: WMATA-02-33380-50499070-041-******-**-OPR** Problem Code: 2424 N/A CODE (GENERAL SYMPTOM) Supervisor: Target Start: Requested By: Chain Mark End: Target Comp: Chain Mark Start: Chain Mark End: Scheduled Start: Creat-Mileage: 0.0 Complete-Mileage: 0.0 Scheduled Start: Task ID Image: Target Comp: Scheduled Start: 10 Inspect for damage BR01 for further inspection of unit Situation Spect Start: 310/21 Ogle/Ross - Inspected unit thoroughly and no damage found. Replaced front headlight which was inop Korrat Korrat Component: 00-400-AL0 CTEM_BALLAST REGULATOR Work Accomp: INSPECTED Feason: INSPECTION Status: CLOSE Position: Warrat Actual Labor Start Date End Date Start Time End Time Approved? Regular Premium 10 Labor Start Date End Date Start Time Approved? No.00	Wor	Nork Location: 2976 E91, GREENBELT YARD, BUILDING (D FIELD BASE PLNT, 1ST FLOOR, CTEM SHOP				Le	ad:			lt	em: CTEM49	200001
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Requested By: Requestor Phone: Target Comp: Chain Mark Start: Chain Mark End: Scheduled Start: Create-Mileage: 0.0 Complete-Mileage: 0.0 Task ID Task ID 10 Inspect for damage BR01 hit T004 breaking the locomotive light on T004, Tagged out BR01 for further inspection of unit Status: CLOSE Position: Warraw Actual Labor Ketu I Labor Start Date End Date Start Time End Time Approved? Regular Hours Hours 10 Labor Start Date End Date Start Time End Time Approved? Regular Premium 10 G3/10/2021 03/10/2021 08:00 11:00 Y 03:00 00:00 Task ID Labor Start Date End Date Start Time Approved? Regular Premium 10 03/10/2021 03/10/2021 08:00 11:00 Y 03:00 00:00 10 Cause Remedy Supervisor G3:00 01:00 Y 03:00 00:00	Pro	blem Code: 2424	N/A CODE (GENERAL SYMPT	OM)	Supervisor:					Target Start:		
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Remarks: Unit inspected and no issues found. Back in service.	Remarks	: Unit inspected and no issu	es found. Back in service.									

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04/7/2021 13:41

Document #2 – WO #16208808 displaying total work completed and work order status for RMM BR01.

Appendix D – Employee Statement

Page 1 of 2

Washington Metropolitan Area Transit	Authority DISTRIBUTED WITHIN 2
Date 3.9.2 Incident Time Date/Time Reported	6 EGG
Incident ID# (from OCC) - Completed by Supervisor	SMS Incidents/Accidents Report# Completed by Supervisor
What happened prior to the incident/accident?	c track
Mode This I sento he	
Describe the incident/accident	OPA to we Ke
Released the parting brack	on buy to make
a yard more and unit move	g att to moot to or
colided with TODA	
What happened after the incident/accident?	
Porke whit called superv	121
Please indicate the area of the injury by placing an X on the corresp	onding body parts below. To specify which
is involved, please use "L" for left and "R" for right.	\bigcirc
A. B	
(A) A	
FRONT	BACK

Appendix D – Employee Statement

Page 2 of 2

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Witness or Employee Statement Form

TO BE COMPLETED AND

Washington Metropolitan Area Transit Authority DISTRIBUTED WITHIN 24 HOURS

	WWATA Empl	oyees and contr	actors		E-maileurer 10	Italaa	
Name (Last Name, Firs	t Name, MI)		OYes ONo	D.O.B.	Employee ID	Union	
Phone Number	Job Title	pentopr	Department/Divis	ion (Company)	Time asleep,	before the incident? Wake	
Last Day Worked (Prio 3-8-21	hours W	orked (in last 24	Date/Time Shift Began 3-9-21 21:00		up_3 Was this the sleep schedule for the		
On Overtime? ØY ON	es Personal lo	Protective Equipr	nent used (list)		Yes O No How alert we prior to the in Alert O Mo Drowsy O I	2 re you immediately icident? Fully iderately Alert Fighting Sleep	
Secondary Employm	nent (Write No	<i>ne</i> if employee d	loes not have see	ondary empl	oyment)	Work Hours	
Name of Secondary Er	прюует				Part Time	Work Hours	
Date of Ulro	Supervis	or			Phone	Number	
Date of Hire						1. 5. (1)	
Employee Injury Info Date of Injury	ormation (Com Time of Injury	plete for all invo Date/Time Injury	blved People. If th y Reported	nere is no inju Body Par	irγ, write Non t(s) Injured:	ne in Date of Injury	
Employee Injury Info Date of Injury ADNO Location (Address) wh	ormation (Com Time of Injury tere injury occur	plete for all invo Date/Time Injur red (check one:	olved People. If th y Reported O MD O VA	nere is no inju Body Par O DC)	nrγ, write Non t(s) Injured:	e in Date of Injury	
Employee Injury Info Date of Injury Aone Location (Address) wh Witness Information (ormation (Com Time of Injury tere injury occur Name, Phone Na	plete for all invo Date/Time Injur red (check one:) umber, Email, add	olved People. If th y Reported O MD O VA ress)	Body Par O DC)	ry, write Non t(s) Injured:	e in Date of Injury	
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Employee Injury Info Date of Injury Location (Address) wh Witness Information (Did Another Person Ca Responsible Party Insu	ormation (Com Time of Injury ere injury occur Name, Phone Na ause this Injury? urance Carrier/A	plete for all invo Date/Time Injury red (check one: umber, Email, add OYes O No gent	Dived People. If the provided of the provided	Body Par Body Par O DC) sible Party	iry, write Non t(s) Injured:	e in Date of Injury)	
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Employee, please read before signing:

- (1) This form is only to be used for Employees who are injured on the job.
- All persons having a workers' compensation claim that was caused by the act of another is required to have the written approval of the Authority before agreeing to or signing any settlement for the injuries or lost wages that were paid as part of the whole by the Authority or its insurer to the employee as workers' compensation benefits.
 Any Employee who willfully makes any materially false or misleading statements or representations for the purpose of obtaining any benefits under workers' compensation or leave provisions of the Authority may be subject to
- prosecution, disciplinary action up to and including dismissal and may adversely affect the employee's rights to workers' compensation benefits.

THIS IS TO CERTIFY THAT I HAVE READ THE ABOVE GUIDELINES AND UNDERSTAND THEM FULLY AND THE INFORMATION I HAVE PROVIDED IS TRUE AND CORRECT.

Employee	Signature:
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Date: 39-2 Copy: (1) SMS Incidents/Accidents (SAFE) (2) Employee File (3) Employee

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 Rev.1 Drafted By:
 SAFE 702 – 07/20/2021
 Page 17

 Rev.1 Reviewed By:
 SAFE 70 – 07/22/2021
 Page 17

 Rev.1 Approved By:
 SAFE 70 – 07/22/2021
 Page 17

WMATA EQUIPMENT AND HI-RAIL OPERATORS

LESSON LEARNED

April 7, 2021

Summary of Incident:

On Tuesday March 9, 2021 at approximately 2351, an equipment operator was attempting to make "yard moves". The operator boarded BR01, started united, and released the parking brake in an attempt to move the unit to access the unit parked directly behind it. After releasing the parking brake, BR01 "jumped" approximately 2 feet and collided with T004, breaking the front headlight.

Contributing Factors:

1. Units not parked with a 10 foot buffer between them

2. Operator failed to notified a yard supervisor that the units were parked out of compliance

3. Operator did not properly release the parking brake

Corrective Action:

1. Ensure that all WMATA personnel comply with all WMATA rules, regulations, and orders; and to perform specific job duties and requirements in a safe, orderly, and efficient manner. (SOP 1.3)

2. Personnel will only operate Class II vehicles that they have been trained to operate, and have also met the training and qualification requirements prescribed for their function by the Office of Rail Transportation. (SOP 3.10)

3. Personnel shall not operate rail vehicles as to collide with another vehicle, bumping post, or obstruction. (SOP 3.91)

4. Personnel shall ensure that the daily vehicle inspection has been accomplished by qualified personnel before operating the vehicle. (SOP 23.4.2)

5. Personnel shall immediately notify yard supervisor, the tower, and/or ROCC if any rail vehicle is found to be out of compliance before operating the vehicle.

Appendix F – Root Cause Analysis



Root Cause Analysis