

#### WMSC Commissioner Brief: W-0206 - Derailment - Yellow Line - October 2, 2022

Prepared for Washington Metrorail Safety Commission meeting on March 7, 2023

#### Safety event summary:

Metrorail contractors operating a hi-rail vehicle that was pushing three rail carts operated the consist over wheel stops, dragging the wheel stops and leading to a derailment of the leading rail cart in a work zone on the Yellow Line at approximately 12:16 a.m. on October 2, 2022. This derailment occurred within the long-term shutdown area between L'Enfant Plaza Station and Pentagon Station.

Communication and coordination about the derailment, dispatch of Metrorail personnel for investigation and any repairs, and any emergency response was inconsistent. These gaps, including as it relates to personnel in the work area and to the Mission Assurance Coordinator, contributed to a lack of immediate Metrorail response, and delayed reporting of the event by Metrorail to the WMSC and Federal Transit Administration. The Kiewit Yard Superintendent, who was acting as the flag person for this move, notified a Metrorail inspector of the derailment. Neither Metrorail nor Kiewit personnel immediately reported the derailment to the Rail Operations Control Center. The Metrorail Construction Inspector reported the derailment to the Mission Assurance Coordinator in the Rail Operations Control Center at 12:55 a.m. No action was taken. At 1:46 a.m., a Metrorail Safety Director on Call contacted the Mission Assurance Coordinator about the derailment. Approximately 15 minutes later, Metrorail requested an Emergency Response Team, Automatic Train Control Maintenance, and Car Track Equipment Maintenance response. Safety Department investigators arrived at 2:51 a.m.

#### Vehicle movement timeline

A Kiewit Equipment Operator in the hi-rail vehicle operating in reverse and a Kiewit Yard Superintendent acting as a spotter/flag person positioned on the leading flat cart were moving the consist on Track 2 from the area near East Potomac Park to transport a scissor lift to another part of the work location in the tunnel closer to L'Enfant Plaza Station.

The Equipment Operator stated in an interview that they heard a loud bang at the time of the derailment, and that when they walked around the consist they noticed a wheel stop on the roadway and that the right rear axle had derailed. The Yard Superintendent, acting as the flag person, also reported hearing and feeling a loud bang. Neither noticed the vehicle dragging wheel stops prior to the derailment or wheel stops on the roadway in the path of the vehicle.

The investigation documented a wheel stop that remained on the running rail beneath the second axle with markings consistent with it being struck by the vehicle. The investigation also documented scrape marks on the top of the right running rail leading to the point of derailment, and damage to an insulated joint and track circuit cabling. A second wheel stop was found next to the left running rail at another insulated joint and track circuit jumper cabling approximately 1,200 feet closer to where the vehicle movement began. Both running rails showed signs of consistent scraping from the point the vehicle started this movement to the point where the second wheel stop was found. In total, the vehicle moved approximately 2,000 feet dragging the wheel stop on the right rail (1,200 feet of that distance also dragging the wheel stop on the left rail), damaging the rail and at least four joint bar locations.

The wheel stops matched the type Kiewit used for tie cranes. Hours prior to this move, a tie crane previously positioned on Track 2 had been lifted by crane from Track 2 to Track 1. Kiewit uses different wheel stops to chock rail carts and



hi-rail vehicles that have longer handles that are easier to identify. No evidence was available to determine whether the hi-rail and flat cart consist was properly stored prior to the derailment. Similarly, evidence was not available to confirm whether the wheel stops were under the rail carts wheels or were left at the location where the tie crane had been stored prior to it being lifted to the adjacent track.

Kiewit's hi-rail move permit states a pre-move checklist must be completed, including walking the proposed travel path within the work zone and removing all wheel chocks. Evidence indicates wheel chocks were removed from the hi-rail vehicle, but other wheel stops in the path of the move were not identified, demonstrating the required walkthrough was not conducted.

#### Probable Cause:

The probable cause of this event was Metrorail's insufficient oversight of contractors to ensure safety procedures are followed regarding rail movement, and the lack of safety promotion and safety assurance activities by contractors through ongoing monitoring and communication to ensure that those procedures are followed. This led to a lack of an effective pre-trip inspection and to the presence of wheel stops in the path of a movement directed by contractor personnel. Contributing to this was insufficient procedures and oversight to ensure that the area is safe following vehicle movement by crane from one track to another.

#### **Corrective Actions:**

Kiewit conducted a safety stand down focused on proper use of equipment and pre-trip inspections.

Metrorail counseled the Mission Assurance Coordinator regarding call intake and reporting procedures.

Related open CAPs:

- C-0162 regarding National Incident Management System (NIMS) and Incident Command System (ICS) requirements and response (expected completion date January 2025).
- C-0163 regarding Mission Assurance Coordinator training, responsibilities, communication, coordination and staffing (expected completion date August 2023).

#### WMSC staff observations:

Metrorail is responsible for the safety of all work in its rail system, including that of contractors.

The personnel making this vehicle movement did not identify during the move that they were dragging wheel stops that were scraping the running rail and causing other damage.

Deficiencies related to this event and response are indicative of areas Metrorail can improve in future work zone planning, including those Metrorail work zones that WMATA labels as authorized construction sites.

Records from the event indicate that personnel were transported for drug and alcohol testing after a delay.



# Washington Metropolitan Area Transit Authority Department of Safety (SAFE) Office of Safety Investigations (OSI) FINAL REPORT OF INVESTIGATION A&I E22643

Date of Event:	10/02/2022
Type of Event:	Derailment
Incident Time:	00:16 hours
Location:	L'Enfant Plaza, L-Line ACS, Track 2
	Chain Marker (CM) L2 082+20
Time and How received by SAFE:	00:55 hours via MAC Notification
WMSC Notification Time:	02:18 hours
Responding Safety Officers:	WMATA SAFE: Yes
	WMSC: No
	Other: No
Rail Vehicle:	CR7974-CR7716-CR7718-CR7725
Injuries:	None
Damage:	Minor damage to track infrastructure (scrapes to
	running rail; damage to insulated joints)
Emergency Responders:	None
SMS I/A Number	20221002#103270MX

## L'Enfant Plaza, L-Line ACS – Derailment

## October 2, 2022

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## **Abbreviations and Acronyms**

ACS	Authorized Construction Site
ARS	Audio Recording System
АТСМ	Office of Automatic Train Control Maintenance
САР	Corrective Action Plan
CAPD	Office of Capital Program Delivery
CF	Contributing Factor
СМ	Chain Marker
СТЕМ	Car Track Equipment Maintenance
ERT	Emergency Response Team
I/A	Incidents/Accidents
MAC	Mission Assurance Coordinator
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
OSI	Office of Safety Investigations
POD	Point of Derailment
RC	Root Cause
ROCC	Rail Operations Control Center
RWIC	Roadway Worker In Charge
SAFE	Department of Safety
SDOC	Safety Director on Call
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 (WMATA) Department of Safety (SAFE) – Office of Safety Investigations

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

### Executive Summary

On Sunday, October 2, 2022, at 00:16 hours, a Kiewit Contractor working within the Authorized Construction Site (ACS) at the WMATA Yellow Line Tunnel and Bridge Rehabilitation Project was operating Kiewit-owned Hi-Rail Vehicle CR7974, pushing Rail Carts CR7716, CR7718, and CR7725 in the L-Line ACS, track 2 when a derailment occurred. The move was performed by contractor personnel, including an Equipment Operator and a Spotter (Vehicle Flag Person). The lead axle of CR7725 derailed to the field side at CM L2 082+20. The Kiewit Yard Superintendent on site notified the Office of Capital Program Delivery (CAPD) Inspector, who in turn notified the Department of Safety (SAFE). SAFE reported the incident to the Rail Operations Control Center (ROCC) via the Mission Assurance Coordinator (MAC). SAFE and Car Track Equipment Maintenance (CTEM) personnel responded and conducted a preliminary investigation. An initial inspection at the derailment site revealed a wheel stop positioned beneath the second axle with markings consistent with it being struck by CR7725.

Further investigation and inspection of the event scene identified consistent scrape marks on the top of the right running rail leading from the vehicle's origin to the Point of Derailment (POD), which included damage to an insulated joint bar and track circuit cabling. Investigators found a second wheel stop next to the left running rail located at CM L2 94+60. This location also included an insulated joint bar and track circuit cabling. Consistent scraping on the top of both running rails was observed from CM L2 94+60 to the vehicle's point of origin at CM L2 103+00. Additional damage, consistent with being struck by the wheel stops, was identified to joint bars at CMs L2 96+45 and L2 96+60.

The wheel stops that were struck were not consistent with those used to chock the Rail Carts, which have handles that protrude outside of the dynamic envelope, making them easier to view. They matched the type associated with Tie Cranes that were collocated in the temporary yard in the area of CM L2 103+00. The Tie Crane wheel stops do not have a side handle for easy visual indication and removal.

There were no reported injuries as a result of this accident. There was minor damage to the wheels on CR7725 and the insulated joints. The running rails sustained minor damage to the rail head. The insulated joint bars and cabling also sustained minor damage. The Hi-Rail Vehicle Operator and Yard Superintendent, who acted as the Vehicle Flag Person, were removed from service for post-incident toxicology testing.

The root cause of the derailment was a failure to follow procedures. The contractor personnel involved with the Hi-Rail Vehicle move did not conduct a thorough pre-trip inspection before the vehicle movement. A contributing factor to the derailment was the improper use of equipment, as the wheel stops were designed for use with the Tie Cranes and were not easily visible, possibly due to the weather conditions (time of day and rain).

## Incident Site

## L'Enfant Plaza, L-Line ACS, CM L2 082+20

# Field Sketch/Schematics



### Purpose and Scope

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

### **Investigative Methods**

The investigative methodologies included the following:

- Physical Site assessment
- Formal Interviews SAFE interviewed two individuals as part of this investigation. Interviews include persons present at, during, and after the incident, those directly involved in the response process. SAFE interviewed the following Kiewit personnel in the field:
  - Equipment Operator
  - Yard Superintendent

- 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.
  - CAPD Inspector
  - OSO Senior Specialist
  - ATCM Assistant Superintendent
  - TRST Division Superintendent
- Documentation Review A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Hi-Rail Vehicle Operator Witness Statement
  - Hi-Rail Vehicle Operator Training
  - Yard Superintendent Witness Statement
  - Yard Superintendent Site Training
  - Kiewit Safety Coordinator Witness Statement
  - Kiewit On-Rail Safety Plan
  - Hi-Rail Move Permit Procedure
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic and Atmospheric Administration (NOAA)
- System Data Recording Review A collection of information contained in Metro Data Recording Systems. This data includes:
  - Audio Recording System (ARS) playback

## **Investigation**

On Sunday, October 2, 2022, at 00:16 hours, a Kiewit Contractor working within the ACS at the WMATA Yellow Line Tunnel and Bridge Rehabilitation Project was operating Kiewit-owned Hi-Rail Vehicle CR7974, pushing Rail Carts CR7716, CR7718, and CR7725 in the L-Line ACS, track 2 when a derailment occurred. The move was performed by contractor personnel, including an Equipment Operator and a Vehicle Flag Person. The lead axle of CR7725 derailed to the field side at CM L2 082+20. The Kiewit Yard Superintendent on site notified the Office of Capital Program Delivery (CAPD) Inspector, who then notified the Department of Safety (SAFE) via the Mission Assurance Coordinator (MAC). The ROCC was notified at 00:55 hours; however, the Kiewit Yard Superintendent did not communicate effectively, which resulted in a delay in notifying personnel to respond. The CAPD Inspector then notified a contact in the Office of Operational Safety Oversight (OSO), who relayed the information to the Safety Director on Call (SDOC). The SDOC then contacted the MAC again and shared the information. SAFE and Car Track Equipment Maintenance (CTEM) personnel responded and conducted a preliminary investigation. An initial inspection at the derailment site revealed a wheel stop positioned beneath the second axle with markings consistent with it being struck by CR7725. When questioned, the spotter reported not seeing any obstructions in their path prior to the derailment. They were focusing their attention to the field side of the running rail due to sections of pipe laid out for later installation.

A review of the vehicle and cart certifications found that all of the vehicles and rail carts were approved for use on the WMATA rail system by CTEM and had current inspection stickers. Investigators removed Rail Cart 7725's inspection sticker and the cart was disqualified for further use pending post-incident inspection and recertification by CTEM. The Event Scene Release was received from the Washington Metrorail Safety Commission (WMSC) at 03:48 hours.

SAFE Investigators took track gauge measurements using a folding ruler at the front and rear of the vehicle. The measurements were within the tolerance identified in the Office of Track and Structures (TRST) 1000 Manual (56 5/8" and 56 3/8", respectively).

Further investigation and inspection of the event scene identified consistent scrape marks on the top of the right running rail leading to the POD, which included an insulated joint bar and track circuit cabling. Investigators walked towards the vehicle's point of origin and found a second wheel stop next to the left running rail located at CM L2 94+60. This location also included an insulated joint bar and track circuit jumper cabling.



Image 1 - Second wheel stop located at CM L2 94+60's insulated joint.



Image 2 - CM L2 94+60 insulated joint damage.

Investigators observed consistent scraping on the top of both running rails from CM L2 94+60 to the vehicle's point of origin at CM L2 103+00. The total area traversed while pushing the wheel stops was approximately 2,000 feet before striking the insulated joint at CM L2 82+20 and derailing. Additional damage, consistent with being struck by the wheel stops, was identified to joint bars at CMs L2 96+45 and L2 96+60.



Image 3 - Example of scraping and rail head damage caused by wheel stop pushing.



Image 4 - Right running rail non-insulated joint damage and rail head scraping (circled). CM L2 96+60.

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The wheel stops found were not consistent with those used to chock the rail carts and hi-rail vehicles, which have handles that protrude outside the dynamic envelope, making them easier to view. They matched the type associated with tie cranes that were collocated in the temporary yard in the area of CM L2 103+00. The tie crane wheel stops do not have a side handle for easy visual indication and removal; however, the tie crane's wheels are readily visible with a pre-trip walkaround.

The Yard Superintendent reported that the derailed consist was parked in the yard since approximately 15:00 hours on October 1, 2022, before the movement operation that led to the derailment. There was a tie crane behind it, which was moved by crane to Track 1 during the afternoon. This was the first move involving the consist since it was secured on October 1. There was no evidence submitted to verify if the consist had been stored properly prior to the derailment. In addition, the Kiewit's Hi-Rail Move Permit states an authorized Kiewit employee must complete the pre-move checklist, which included walking the proposed travel path within the current work zone and removing all wheel chocks. Wheel chocks were removed from the hi-rail vehicle prior to vehicle movement. However, there were wheel stops in the travel path of the hi-rail vehicle, which indicated that a walkthrough had not been conducted prior to vehicle movement.



Image 5 - Wheel chocks used to secure hi-rail vehicle CR7974.

There were no reported injuries as a result of this accident. There was minor damage to the wheels on CR7725 and the insulated joints. The running rails sustained minor damage to the rail head. The insulated joint bars and cabling also sustained minor damage. The hi-rail vehicle Operator and Yard Superintendent, who acted as the Vehicle Flag Person, were removed from service for post-incident toxicology testing.

## Chronological Event Timeline

A review of ARS playback, i.e., phone and radio communications, revealed the following timeline. Kiewit communications took place over handheld radios that are not part of WMATA's ARS and were unavailable for review:

Time	Description
00:16:00 hours	Kiewit Yard Superintendent and Hi-Rail Vehicle Operator heard a loud noise
	and discovered the Hi-Rail Vehicle derailed during vehicle movement.
00:20:00 hours	Kiewit Yard Superintendent notified Kiewit Management and the WMATA
	Inspector of the derailment within the ACS. Kiewit Management did not report
	the derailment to the ROCC directly.
00:50:00 hours	WMATA Inspector arrived on scene and conducted a preliminary assessment
	of the incident and notified the WMATA Construction Safety Manager. Safety
	Manager then notified the Safety Director on Call.
00:55:51 hours	WMATA Inspector reported the derailment to the ROCC via the MAC at L
	Line Work Location. [Phone]
01:46:12 hours	Safety Director on Call contacted the MAC about the derailment. [Phone]
02:00:59 hours	SAFE/MAC request for ERT, ATCM & CTEM response. [Phone]
02:51:01 hours	SAFE/OSI and SAFE/OSO arrived on the scene. [Phone]
03:45:25 hours	Rail cart re-railed. [Phone]
03:48:09 hours	SAFE/MAC updated WMSC and confirmed Event Scene Release [Phone]
05:35:28 hours	SAFE/OSI notified MOC about damage to insulated joints and running rails.
	[Phone]
05:38:01 hours	SAFE/OSI and SAFE/OSO cleared the scene. [Phone]

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

## Interview Findings

As part of the investigation launched into the Derailment in the L-Line ACS at L2 082+20, SAFE conducted two interviews. The interviews were conducted at the derailment site on the day of the event and identified the following key findings associated with this event. Findings detailed below include reported information from interviews and may conflict with other data sources contained in the report.

### Equipment Operator

The Equipment Operator stated they were transporting a Rail Cart that contained a scissor lift at the request of the Yard Superintendent. They started their shift at 16:30 hours on October 1, 2022. The Equipment Operator began working on the project for Kiewit on September 26, 2022. They have about 20 years of experience operating equipment in total. They reported that they had a spotter assigned and were operating in reverse, using their mirrors to keep an eye on their hand/flashlight signals. They moved at approximately five miles per hour. While operating the consist in the tunnel, they heard a loud bang. They stated that upon initial investigation, a wheel stop was found on the roadway and the right rear axle derailed. The Superintendent reported the event immediately, and they stood by for assistance. At the previous night's end of shift (October

1, 2022), they said they operated the same unit and Rail Carts to the work site and left it there for the day shift crew. When they arrived for work at 16:30 hours, the vehicle was back in the yard.

## Yard Superintendent

The Yard Superintendent reported that they started their shift at 14:45 hours on October 1, 2022. Before the event, they coordinated moves around the yard area. The derailed consist was parked in the yard since approximately 15:00 hours on October 1, 2022. There was a Tie Crane behind it, which was moved by crane to Track 1 during the afternoon. They received a request for a scissor lift at the work site closer to L'Enfant Plaza Station at approximately 24:00 hours and performed spotter duties for the Equipment Operator during the move. There were no problems before the derailment. They stated they heard a loud bang at approximately CM L2 80+00. They noted that the incident was reported at approximately 00:20 hours.

## Office of Automatic Train Control Maintenance (ATCM)

ATCM personnel inspected the incident location and found no active equipment damage. The damaged cabling was no longer in use. ATCM assets were removed from the roadway from chain markers L2-057+00 to L2-108+19.

## Office of Car Track Equipment Maintenance (CTEM)

CTEM personnel performed the necessary safety inspection for Hi-Rail Vehicle CR7974 on September 7, 2022 and approved the equipment for use on the roadway. The current safety inspection sticker expires in February 2023.

### Weather

On October 2, 2022, at the time of the incident, NOAA recorded the temperature as 62°F, with the wind at 5 mph, rain, fog, and visibility of 3 miles. Weather was not ruled out as a contributing factor to this incident (Weather source: NOAA – Location: Washington, DC.)

### Post-Incident Toxicology Testing

Post-incident toxicology testing was conducted. Involved personnel were found to be in compliance.

### Immediate Mitigation to Prevent Recurrence

- Kiewit immediately halted work operations.
- Kiewit personnel performed an inspection of the work zone.
- Kiewit Management conducted a safety stand down with all shifts discussing the importance of pre-trip inspections and proper use of equipment.
- The Equipment Operator and Yard Superintendent were removed from service for postincident testing.
- MAC counseled on call intake and reporting procedures.

### **Related Rules and Procedures**

• Kiewit-owned Hi-Rail Move Permit Procedure

## **Findings**

- The hi-rail Equipment Operator conducted a planned move while utilizing a spotter, departing from approximate CM L2 103+00.
- No moves were made with the hi-rail and rail carts involved since approximately 1500 hours on October 1, 2022.
- A tie crane was initially parked behind Rail Car CR7725.
- Tie crane wheel stops were placed in the hi-rail vehicle's path prior to the Equipment Operator's shift. It was undetermined whether the wheel stops were placed under the rail cart's wheels or left in place after the tie crane was removed and not observed by the Vehicle Flag Person when the vehicle began its movement.
- One wheel stop was found at CM L2 094+60 at an insulated joint.
- The second wheel stop was found jammed against an insulated joint at CM L2 82+20, which caused the rail cart to derail approximately 2,000 feet from the movement's origin.
- MAC was notified at 00:55 hours by the RWIC; however, they did not notify the SDOC. A CAPD Inspector on-site then notified SAFE/OSO, who notified the SDOC.

## Probable Cause Statement

The root cause of the derailment was a failure to follow procedures. The contractor personnel involved with the hi-rail vehicle move did not conduct a thorough pre-trip inspection prior to vehicle movement. A contributing factor to the derailment was the improper use of equipment, as the wheel stops were designed for use with the tie cranes and were not easily visible, possibly due to the weather conditions (time of day and rain).

### **Recommended Corrective Actions**

The following are the recommended corrective actions identified due to this investigation. These 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.

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
103270_SAFE CAPS_CAPD _001	(RC-1) Kiewit Management conducted a safety stand down with all personnel to review the incident, focusing on the proper use of equipment and pre-trip inspections.	CAPD SRC	Completed

# **Appendices**

## Appendix A – Derailment Photos



Image 6 - Rail Cart 7725's resting position following the derailment.



Image 7 – Front axle (second in the direction of travel) of Rail Cart 7725 in contact with wheel stop near CM L2 82+20 at an insulated joint.



Image 8 – Rail Cart 7725 rear axle (lead axle in the consist) derailed near CM L2 082+20.



Image 9 – Rear view of derailed Rail Cart 7725 rear axle near CM L2 082+20.



Image 10 – Close view of derailed Rail Cart 7725 rear axle near CM L2 082+20.



Image 11 – Wheel stop removed from the roadway near CM L2 82+20.

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#### Appendix B – Witness Statements

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Figure 1 – Equipment Operator Incident Statement.

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Figure 2 – Yard Superintendent Incident Statement.

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Time Line of my involvement with the Kelly Can Dernilment Incident as fello D At approximately 20:25 hours on 10/2/22, I was notified by . Track 2. Gained permission to walk down tunnel. Track 2. Gained permission to walk down tunnel. Track 2. Gained permission to walk down tunnel. Track 2. Gained permission to walk down tunnel. Tannel 2 hovers to the scene of the densiled Kelly Car. At approximately 20:35 hours, arrived at densilment scene and assessed conditions and any damage. Dat approximately 20:50 hours, WMATA Investigation and interviews of worker involved in the incident. At appreximately 20:50 hours, WMATA Investigators took full control of the Investigation and scene conditions. Waitak for authonization by WMATA and Kiewit sonion management to escart Coorner and Soction for unine tes At appreximately 04:50 hours, error I left the scene of the incident to escart Operator and Spetter to the EMT office. I believe THE PROCEEDING.STATEMENT TO BE TRUE TO THE BEST OF MY KNOWLEDGE. WITNESS SIGNATURE: DATE: 10/3/22	k in second	IN EXPLAIN W EXPLAIN YO	THE WEATHER, NO UR TASK AND ANY PR	NT – WHO, W. DISE, AND LIGHTI EVIOUS ACTIVITY	HAT, WHEN, WHER NG WERE LIKE AT THE I Y THAT WOULD PLAY A	RE, AND HOW THE OF THE INCIDENT. FACTOR IN THE INCIDEN	т.
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Figure 3 – Safety Coordinator Incident Statement.

## Appendix C – Safety Standdown Rosters

			IG ATTENDAN	"Build Your Le	ogacy"	w Shift
itle of Trai ocation of ate of Trai	ning Course Training ining	WMATA Yellow Line Tunnel and NPS LOT B/C	Bridge Rehabilita	ation Project Orientation		y mint
structor(s	)/Facilitator(s)	atoriale used	- 6	anstraction,	Managar	
C	WM	IATA Yellow Line Tunnel and Bridge	Rehabilitation Pr	roject Orientation How	Toint Presentation	
San	ety stand h	own - Deka	ilment	Incident	- 10/02/22	
MPLOYEE	'S ACKNOWLEDGEMEN	Т:				
his is to ac	knowledge that I have re	eceived the training & materials a	s defined above.			
S#	Employee name incl	uding suffix (Sr., Jr., etc.)				
3#	First (Print)	Last (Print)	PERNER #	Company	Craft	Employee Signature
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Instru	ctor/Facilitator's Signature				-	Date 22
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Figure 4 – Safety Standdown Roster page 1 of 3.

		TRAININ	NG ATTENDAN	ICE SHEET	Jacy De	ay Shiff
Title of Ti Location	raining Course of Training	WMATA Yellow Line Tunnel and	Bridge Rehabilita	tion Project Orientation	<u> </u>	
Date of T	raining	10/2/22	severy s	ans own		
Descriptio	on of topics covered and m	aterials used:		Construction /	lanager	
Sat	Ety Stand D	ATA Yellow Line Tunnel and Bridge	e Rehabilitation Pr	oject Orientation Powe	Point Presentation	
	1				and al	
EMPLOYE	EE'S ACKNOWLEDGEMEN	T: colved the training & materials a	n defined shave			
	Employee name inclu	uding auffly (25 to ata)	is defined above.			
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			2	RCC		1
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			_	KIEWIT	ACS	0
				Kiewit	staff	6
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Figure 5 – Safety Standdown Roster page 2 of 3.

Rev. 1 Drafted By: SAFE 702 – 2/14/2023 Rev. 1 Reviewed By: SAFE 71 – 02/15/2023 Rev. 1 Approved By: SAFE 71 – 02/15/2023 Page 24

		Talent Deve	Iopment	"Build Your Le	gacy"	CL.A.
itle of ocatio ate of struct escrip	Training Course n of Training Training or(s)/Facilitator(s) tion of topics covered and	WMATA Yellow Line Tunnel a	nd Bridge Repabilitz	tion Project Openation	Day In Tanager	1 Shift
	Sately Stan	MATA Yellow Line Tunnel and Brid	ge Rehabilitation P	roject Orientation Per	Presentation	_
	and y series	s more per	comen /	Incident	10/02/2	2
MPLO` his is t	YEE'S ACKNOWLEDGEME o acknowledge that I have	NT: received the training & materials	as defined above.			
S#	Employee name in First (Print)	cluding suffix (Sr., Jr., etc.)	PERNER #	Company	0	Employed
	P		FERNER #	Company	Gran	Employee Signature
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Instructor/Facilitator's Signature

10/02/22 Date OG:00 AM

Figure 6 – Safety Standdown Roster page 3 of 3.

### Appendix D – Root Cause Analysis

## E22643 – Improper RWP – L'Enfant Plaza, L-Line ACS

