



WMSC Commissioner Brief: W-0294 – Evacuation for Life Safety Reasons – Greenbelt Rail Yard – December 5, 2023

Prepared for Washington Metrorail Safety Commission meeting on May 14, 2024

Safety event summary:

A gas leak in the Greenbelt Rail Yard led to the evacuation for life safety reasons of the Railcar Service & Inspection Shop on December 5, 2023.

After smelling gas, employees pulled a manual fire alarm pull station (Device #429) to indicate to others to evacuate and called 911 directly. A Car Maintenance Supervisor reported the evacuation to Maintenance Operations Control at 7:06 a.m. Another Car Maintenance employee reported the gas leak at 7:16 a.m. This is also when the Prince George's County Fire Department arrived at the rail yard due to the reported gas leak. The Maintenance Controller later sent an email notification to other personnel.

The response identified that the gas leak was from the first shut off valve on a gas meter outside the entrance to the railcar inspection shop. The fire department shut off the gas supply to the shop. They departed the yard at 7:41 a.m.

Metrorail's system map was unclear regarding the location of the activated pull station (Device #429), which delayed final resolution of the evacuation.

Personnel returned to the shop at 7:54 a.m.

Washington Gas responded and addressed the leak later that day. A Metrorail plumber verified the repair.

Probable Cause:

The probable cause of this evacuation was a leak from a gas meter shut off valve.

Corrective Actions:

Car Maintenance briefed all employees on the importance of communicating safety incidents through the Command Line.

Metrorail ensured the shut off valve on the gas meter was repaired.



Washington Metropolitan Area Transit Authority
Department of Safety (SAFE)
Office of Safety Investigations (OSI)

FINAL REPORT OF INVESTIGATION A&I E23867

Date of Event:	December 5, 2023
Type of Event:	Evacuation for Life Safety Reasons
Incident Time:	07:06 Hours
Location:	Greenbelt Yard - Service & Inspection (S&I) Shop (Building B)
Time and How received by SAFE:	08:24 Hours, Mission Assurance Coordinator (MAC)
WMSC Notification Time:	08:24 Hours (via email)
Responding Safety Officers:	Office Emergency Preparedness (OEP)
Rail Vehicle:	None
Injuries:	None
Damage:	None
Emergency Responders:	Prince George's County Fire Department (PGFD), Metro Transit Police Department (MTPD)
SMS I/A Incident Number:	20231207#113237

Greenbelt Yard S & I Shop – Evacuation for Life Safety Reasons

December 5, 2023

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Abbreviations and Acronyms

ARS	Audio Recording System
CCTV	Closed-Circuit Television
COMM	Office of Communication
CMNT	Office of Car Maintenance
F & I	Fire and Intrusion
MAC	Mission Assurance Coordinator
MICC	Metro Integrated Communication and Command Center
MOC	Office of Maintenance Operation Control
NOAA	National Oceanic and Atmospheric Administration
OSI	Office of Safety Investigations
PGFD	Prince George's County Fire and EMS Department
SAFE	Department of Safety
SDOC	Safety Director On-Call
SMNT	Office of System Maintenance
SMS	Safety Measurement System
S & I	Service and Inspection
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

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

Executive Summary

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

On Tuesday, December 5, 2023, at 07:06 hours, a safety incident necessitating evacuation occurred at Greenbelt Yard's Service & Inspection (S&I) Shop (Building B). The event, classified as an Evacuation for Life Safety Reasons, was due to a Gas Leak, which prompted a coordinated response.

Upon detection of the smell of gas leaking near the S&I Shop, the Office of Car Maintenance (CMNT) Supervisor reported the incident to the Metro Integrated Command Center (MICC), specifically communicating with the Office of Maintenance Operation Control (MOC) CMNT Controller that the Greenbelt Yard S&I Shop was being evacuated due to the smell of gas. The MICC MOC Controller verified the report and then issued an internal email notification informing the Office of Safety Investigations (OSI).

The manual pull station (Device #429) within room #33 of the S&I Shop was activated, triggering the integrated fire alarm system. Prince George's County Fire Department (PGFD) responded to the scene and faced challenges while attempting to reset Device #429 due to an unclear location on the system map.

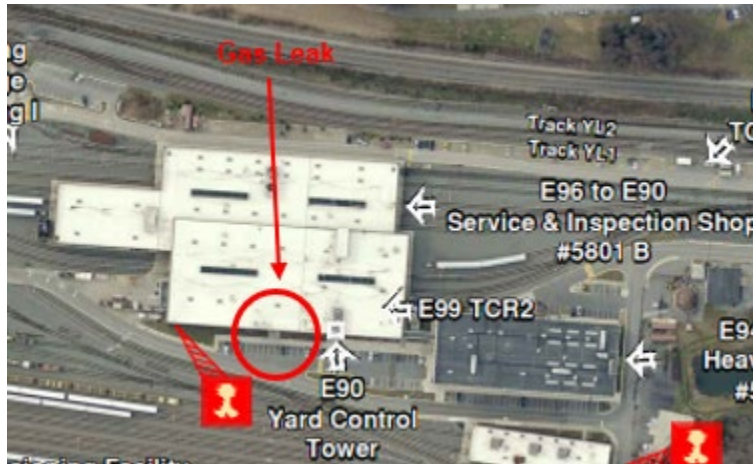
The Office of System Maintenance (SMNT) dispatched personnel from the Office of Communication (COMM) to locate and successfully reset Device #429, thereby clearing the fire alarm on the Fire and Intrusion (F&I) panel.

The probable cause of the Evacuation for Life Safety Reasons on December 5, 2023, at Greenbelt Yard S&I Shop (Building B) was a gas leak from the first shut off valve on the gas meter located outside the S&I Shop.

Incident Site

Greenbelt Yard (S&I) Shop – Building B

Field Sketch/Schematics



The above depiction is not to scale.

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.
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
 - National Oceanic and Atmospheric Administration (NOAA)
 - Maximo
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
 - Audio Recording System (ARS) playback, including MICC CMNT & MAC Phone
 - Closed-Circuit Television (CCTV)

Investigation

On Tuesday, December 5, 2023, at 07:06 hours, an Evacuation for Life Safety Reasons event occurred at the Greenbelt Rail Yard S&I Shop (Building B) due to a gas leak from an external gas meter. An employee on site called the Fire Department directly.

At 07:06 hours, the CMNT Supervisor reported a gas smell at Greenbelt Yard S&I Shop to the MICC CMNT Controller, which resulted in the evacuation of the Greenbelt Yard S&I Shop (Building B). At 07:16 hours, a CMNT personnel member also notified the MICC CMNT Controller of the gas leak. However, there was a 24-minute delay in the email notification by the CMNT Controller.

At 07:16 hours, CCTV revealed PGFD arriving at Greenbelt Yard.



Image 1 - Image of Prince George's County Fire Department arriving at Greenbelt Yard at 07:16:54 hours.

Through informal interviews, it was revealed that PGFD verified the gas leak was coming from the machine shop area and shut the gas off to the Greenbelt Yard S&I Shop from the outside. At 07:35 hours, PGFD cleared the Greenbelt Yard S&I Shop.

At 07:41 hours, CCTV revealed PGFD departing Greenbelt Yard. No views of Building B were available to observe the building evacuation.



Image 2 – Image of Prince George's County Fire Department departing Greenbelt Yard at 07:41:09 hours.

At 7:54 AM, the CMNT Supervisor reported that the personnel had returned to the S&I Shop, located in Building B. PGFD had shut off the gas as they were unable to locate the source of the pull station fire alarm. An unknown source had notified Washington Gas of the gas leak.

At 07:58 hours, the Greenbelt Shop Supervisor sent an email stating that the Greenbelt Yard S&I Shop was cleared by PGFD, according to informal interviews.

As per Maximo reports, the Office of Communication (COMM) responded to an active fire alarm and identified device #429 as the culprit. However, they were unable to locate the device with the mapping prints despite their attempts. A survey of the Greenbelt Yard S&I shop revealed that the pull station was on the lower floor next to the train bay area. COMM personnel reset device #429, and the fire alarm was cleared from the F&I panel in the main communication room.

Based on informal interviews conducted at 08:00 hours, a plumber was sent to the Greenbelt Yard S&I Shop, and Washington Gas was notified to investigate a gas leak. The Washington Gas team arrived at an unknown time and found a high concentration of gas emanating from the ground in front of the meter. Another Washington Gas crew was dispatched to work on the system and arrived at 11:30 hours. The first shutoff valve on the gas meter was discovered to be leaking, and the Washington Gas team fixed the leak, completing the repair at 18:15 hours. The Washington Gas crew stayed at the gas leak location until all assets were inspected by WMATA plumbers. All personnel involved left the scene at 19:30 hours.

Chronological Event Timeline

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

Time	Description
07:06:31 hours	<u>CMNT Supervisor</u> : Notified MICC CMNT Controller that Greenbelt Yard S&I Building E was being evacuated due to a gas smell. [Phone]
07:16:42 hours	<u>CMNT Personnel</u> : Notified MICC CMNT Controller that Greenbelt Yard S&I Building E was being evacuated due to a gas smell. [Phone]
07:16:54 hours	PGFD arrived at Greenbelt Yard. [CCTV]
07:41:09 hours	PGFD departed Greenbelt Yard. [CCTV]

Time	Description
07:47:53 hours	<u>SDOC</u> : Notified the MAC that Greenbelt Yard S&I Building E was being evacuated due to a smell of gas. [Phone, MAC]
07:54:24 hours	<u>CMNT Supervisor</u> : Notified MICC CMNT Controller that personnel were back inside the Greenbelt S&I Shop. [Phone]

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

Weather

On Tuesday, December 5, 2023, at the time of the incident, NOAA recorded the temperature as 41°F, with fair skies, winds 7 MPH, and 60% humidity. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Greenbelt, MD.

Related Rules and Procedures

Human Factors

Evidence of Fatigue

The biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied for this event.

Fatigue Risk

The biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied for this event.

Post-Incident Toxicology Testing

This incident did not meet the criteria for WMATA's Drug and Alcohol Policy and Testing Program 7.7.3/6.

Findings

- The gas leak was due to a leak in the shut off valve on gas meter.
- Within Room #33 of the S&I Shop on the lower floor next to the train bay area, a manual pull station (Device #429) was activated.
- An employee on site called the Fire Department directly.
- COMM was promptly apprised of an active fire alarm triggered by the manual pull station.
- There was a 24-minute delay in the email notification by the CMNT Controller.
- Simultaneous with the manual pull station activation, the alarm on the F&I panel was engaged.
- The evacuation of the S&I building was implemented, lasting approximately 48 minutes.

Immediate Mitigation to Prevent Recurrence

- PGFD was dispatched and shut the gas off.
- COMM reset the manual pull station (fire alarm).
- The first valve on the gas meter was repaired.

Probable Cause Statement

The probable cause of the Evacuation for Life Safety Reasons on December 5, 2023, at Greenbelt Yard S&I Shop (Building B) was a gas leak from the first shut off valve on the gas meter located outside the S&I Shop.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
113237_SAFE CAPS_CMNT_ 001	Office of Car Maintenance (CMNT) will conduct a documented conversation with all employees to ensure safety related incidents in the shops and yards are disseminated to the Command Line via verbal communication.	CMNT	Completed
113237_SAFE CAPS_CMNT_ 002	The Office of Car Maintenance (CMNT) will ensure that PLNT will have the first shut off valve on the gas meter repaired.	CMNT SRC	Completed

Appendices

Appendix A – Work Orders (redacted)



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

Work Order #: 18277384
Type: CM



Status: CLOSE
12/05/2023 22:05

Work Description: E99 S&I SHOP RM33 SOUTHEAST PULL STATION COMM DISPATCHED TO RESET ALARMS /SMELL OF GAS
Job Plan Description:

Work Information			
Asset: 21004	COMM, FIA, EDWARDS, EST3, E99	Owning Office: COMM-TSSM-BFLD	Parent:
Asset Tag:		Maintenance Office: COMM-TSSM-BFLD	Create Date: 12/05/2023 07:21
Asset S/N: E99F&I		Labor Group: COMM2B04	Actual Start: 12/05/2023 14:32
Location: 3179	E90, GREENBELT YARD, BUILDING (B) S&I, 1ST FLOOR, ROOM 45, DATA COMMUNICATION	Crew:	Actual Comp: 12/05/2023 14:32
Work Location:		Lead: [REDACTED]	Item: N60650300
Failure Class: COMM002	FIRE AND INTRUSION	GL Account: WMATA-02-33540-50499950-042-*****-OPR**	Target Start:
Problem Code: 1893	FIRE ZONE ACTIVE	Supervisor:	Target Comp:
Requested By: [REDACTED]		Requestor Phone: 57583	Scheduled Start:
Chain Mark Start:		Chain Mark End:	
Create-Mileage: 0.0		Complete-Mileage: 0.0	

Task IDs

Task ID	Read Long Description
10	Responded to active fire alarm at S&I shop in yard, found device# 429 in alarm. Look up location off device on prints, device# 429 is a pull station couldn't find device location on prints. Surveyed S&I shop to locate pull station, found pull station on lower floor of S&I shop next to train bay area. Reset pull station, then was able to reset and clear fire alarm on FIA panel in main comm room. System normal.

Component:	Work Accompl:	Reason:	Status:	Position:	Warranty?:
			CLOSE		N

Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost
10	[REDACTED]	12/05/2023	12/05/2023	11:00	13:00	Y	02:00	00:00	\$103.29
10	[REDACTED]	12/05/2023	12/05/2023	11:00	13:00	Y	02:00	00:00	\$98.00
10	[REDACTED]	12/05/2023	12/05/2023	11:00	13:00	Y	02:00	00:00	\$94.23
Total Actual Hour/Labor:							06:00	00:00	\$295.52

Ticket	Description	Class	Status	Relationship
8714986	E99 REPORT OF A GAS SMELL IN THE S&I RM #33 THE FIRE DEPARTMENT WAS DISPATCHED	SR	RESOLVED	RELATED

Cause	Remedy	Supervisor	Remark Date
5645	FALSE ALARM [NO ALARM]	5646 NO ACTION (NEEDED) NO ACTION (TAKEN)	12/05/2023

WT_plust_woprnt.rptdesign 12/7/2023 14:21

Document 1 - Initial Work Order for pull station and smell of gas (redacted) page 1 of 2.



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

Work Order #: 18277384
 Type: CM



Status: CLOSE
 12/05/2023 22:05

Work Description: E99 S&I SHOP RM33 SOUTHEAST PULL STATION COMM DISPATCHED TO RESET ALARMS /SMELL OF GAS
 Job Plan Description:

Failure Reporting			
Cause	Remedy	Supervisor	Remark Date
Remarks: Reset Manul Pull station. Panel operated normally.			

Document 2 - Initial Work Order for pull station and smell of gas (redacted) page 2 of 2.



**Washington Metropolitan Area Transit Authority
Maintenance and Material Management System
Incident Details**

Incident #: 8714986

Status: RESOLVED

Incident Summary: E99 REPORT OF A GAS SMELL IN THE S&I RM #33 THE FIRE DEPARTMENT WAS DISPATCHED

Incident Start: 12/05/23 07:29:00

Incident Details

Detail: COMM WAS DISPATCHED TO RESET ALARMS

Asset:		Rail Line:		Line Delay:	0
Location:		Jurisdiction:		Passenger Delay:	0
Train ID:	7:29:00 AM	Injuries??:	N	Train / Bus Delay:	0
Direction:		#9#??:	N	Partial:	0
Report Location:		Mode of Operation:		Offload:	0
Station Location:	E90 GREENBELT YARD BLDG B S&I	# of Cars in Consist:		Late Dispatch:	0
Regional ID:		Originating OCC:	MOCC	No Dispatch:	0
Trouble Code:	ZONE FIRE ZONE ACTIVE	Created By:	E022679	Trips Lost:	0
Responsibility Code:	COM COMMUNICATIONS	Created Date:	12/05/23 07:29:31	Reroutes:	0
Mileage:		Status Date:	12/05/23 02:54:09	Abandoned:	0

Operator Miscellaneous

Operator:		Block #:		Route:		Road Call??:	N
Division:		Run:		Destination:		Change Off??:	N

Related Work Orders

Work Order	Asset	Description	Location	Status
18277384	21004	E99 S&I SHOP RM33 SOUTHEAST PULL STATION COMM DISPATCHED TO RESET ALARMS /SMELL OF GAS	3179	CLOSE

Appendix B – Scene Photographs



Image 1 front view of leaking gas meter & Image 2 angle view of leaking gas meter.