BALTIMORE COUNTY FIRE DEPARTMENT

AFTER ACTION REVIEW REPORT

COMMERCIAL BUILDING FIRE WITH MAYDAY

ADVANCE AUTO PARTS
11909 REISTERSTOWN ROAD
REISTERSTOWN, MARYLAND 21136

JULY 18, 2023

REPORT PUBLISHED: MARCH 15, 2024

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John A. Olszewski, Jr.
County Executive

Joanne R. Rund, *Chief*
Fire Department

March 15, 2024

I am pleased to present the Advance Auto Fire After Action Review (AAR) report, a testament to our collective dedication to learning, growing, and ensuring the safety of our team and those we serve. This comprehensive analysis exemplifies transparency and accountability, showcasing our commitment to continuous improvement after our recent near-miss incident.

Within this report, you will find a detailed breakdown of the incident, a thoughtful examination of our response strategies, and invaluable recommendations to fortify our future capabilities. It is a roadmap formed from collaborative efforts—a reflection of our shared commitment to unraveling the complexities of the event, acknowledging areas for improvement, and applauding commendable actions.

I extend my heartfelt gratitude to each investigation and writing team member. Your dedication, diligence, and collaborative spirit throughout the process are commendable. Your insights and recommendations will bolster our resilience, mitigate risks, and elevate our operational readiness.

To those who shared their experiences and perspectives, your involvement is evidence of our commitment to learning, adapting, and evolving in the face of challenges. It is your collective effort that transforms challenges into opportunities for growth, and for that, I extend my sincere appreciation.

As we embark on discussions surrounding the AAR, I urge all team members to engage actively. Your input is fundamental to our shared success and the continual improvement of our operational practices. Through open dialogue and constructive feedback, we will further strengthen our capabilities and uphold the highest standards of excellence.

In closing, I extend my deepest gratitude to each of you for your hard work, commitment to excellence, and unwavering dedication to our mission. Together, we will navigate challenges, emerging with increased strength and resilience to serve our communities safely.

Joanne R. Rund
Fire Chief

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Acknowledgements

Following the conclusion of this incident, Fire Chief Joanne Rund appointed an After Action Review Team comprised of internal and external stakeholders. The purpose of this initiative was to collect and evaluate all known information about the incident to identify strengths and weaknesses, and to make recommendations that will strengthen our department's ability to respond safely and effectively to future incidents. The After Action Review was framed in this spirit, understanding that decisions were made on the scene without the benefit of the same information that was later learned through the AAR process. The intent of this report is to learn from this incident and understand how we can improve in the future, not to criticize the decisions or actions of those on scene.

The After Action Review Team is extremely grateful to all individuals who participated and assisted with various aspects of this report. Their teamwork and cooperation was vital to ensuring this report was completed thoroughly and objectively. The Team would like to recognize the following individuals and organizations for their assistance with this project and thank them for their contributions and insight.

Fire Captain Andrew Laird for his efforts with the presentation portion of the After-Action Review

Andrew Starnes from Insight Fire Training, LLC for his technical assistance with the TIC footage.

Fire Captain Kurt Holloway and **Fire Captain Steve Stelmack** for their efforts to coordinate the After Action Review Implementation Team.

Deputy Assistant Chief Frank Leeb (Fire Department of the City of New York), **Captain Andrew Ruiz** (Los Angeles City Fire Department), and **EVD Kyle Stephens** (Baltimore City Fire Department) for their input as technical reviewers.

The **Management Team of Advance Auto Parts** for their assistance with clarifying building construction and layout.

The **Engineering Team at MSA** for their technical assistance in analyzing data from SCBAs used on the incident.

Andy Mulieri from the Baltimore County Public Library for his assistance with filming and editing video clips for the AAR presentation.

All members who responded to the 56-4 firebox for their honesty, candor, and willingness to improve.

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EXECUTIVE SUMMARY

On July 18, 2023, the Baltimore County Fire Department experienced a significant near-miss event. At 21:37, the Baltimore County 911 Center began receiving calls for a building fire at the Advance Auto Parts, located at 11909 Reisterstown Road. Shortly after the initial call was placed, the uniformed Administrative Duty Officer in dispatch advised the battalion chief on an administrative talkgroup that a call was pending in the system for a building fire.

This practice, known colloquially as a "Pre-Alert," was an informal solution devised to enable the three on-duty chief officers who cover a 682-square mile response area to be aware of critical calls which were pending in the system prior to dispatch. Over time, many stations began listening to the ADO Talkgroup in order to respond to these calls in a more expedient fashion. This practice played a role in this fire as the call was dispatched almost eight minutes after receiving the first 911 call.

Truck 18, Engine 56, and Tower 323 (L to R) operating on Side Alpha of the structure.

Within one minute of the pre-alert being made, the first-due engine company (Engine 56) called available in their first due response area and began traveling to the reported location. Over the next few minutes, several other engine and truck companies followed suit. These actions ultimately led to units arriving out of their normally-expected order and caused confusion on the fireground.

At 21:40 , E56 arrived on-scene and observed heavy smoke conditions coming from the business. The officer-in-charge of E56 assumed command and crews forced entry through the doors on Side Alpha. The OIC made the decision not to send crews into the building, aside from a few feet initially, due to the lack of resources on scene and the significant hazards present in the building. The initial First Alarm assignment for a "Commercial Building Fire" was dispatched at 21:45, approximately eight minutes following the initial 911 call.

Truck 18 arrived on-scene at 21:49 and the "inside team" consisting of the lieutenant and search firefighter were met by the driver of E56 and advised that crews were unsure exactly where the seat of the fire was located inside the building. The inside team proceeded to enter the building, searching and pulling ceiling tiles ahead of the hose

A view of the Charlie-Delta corner with the staircase to the second floor after crews had been evacuated. *Photo courtesy of Rusty Brown.*

line in an attempt to locate the fire.

Concurrently, E413's crew was directed to the Charlie Side of the building to perform reconnaissance. They located an exterior staircase, which was later discovered to be access to the second floor. Due to the terrain, E413 was initially unaware of this fact. At 21:53, E413 made forcible entry into the door and advised that they had fire conditions and needed an attack line. At the same time, the OIC of T18 had made his way to the Alpha-Delta corner and noticed heat conditions were beginning to increase.

While crews on the exterior were repositioning an attack line down the Delta Side of the structure for E413 to utilize in the rear, the OIC of T18 continued to search for the fire and ended up behind the cash registers in the storefront. At 22:00, the OIC of T18 realized that he became separated from his crew, was disoriented, and began multiple attempts to raise command. After being unsuccessful, he declared a MAYDAY at 22:02, roughly 12 minutes after making entry.

The captain from E19, designated as the RIT Officer, began to hear T18's calls for assistance beginning at 22:00, prior to the actual MAYDAY being declared. In anticipation of deployment, he donned his facepiece and, upon hearing the MAYDAY being declared, entered into the structure around 22:04, believing that the balance of his crew was with him. It was later discovered that he deployed alone, and without any equipment. He made contact with the MAYDAY lieutenant at 22:05. The total duration from the time the MAYDAY was declared until the time E19's captain made contact with the disoriented lieutenant was 3 minutes and 22 seconds.

The captain from E19 and lieutenant from T18 attempted to exit the structure together; however, they unknowingly progressed further into the building before realizing that they became disoriented again at 22:09. They initiated buddy breathing utilizing the Emergency Breathing Supply System (EBSS)- the first known successful deployment of such in an emergency situation. Two additional members entered the building and located the pair at 22:13 before all four members exited at 22:17. The total duration of the MAYDAY event was 15 minutes and 34 seconds. Additionally, there was no effective water applied to the seat of the fire from the time that the structure was entered through the end of the MAYDAY event.

TV News

Story

Prior to the resolution of the MAYDAY, a building evacuation was ordered. Once the MAYDAY was resolved, crews transitioned to defensive fireground operations. The MAYDAY lieutenant was transported to Carroll Hospital as a precaution; however, he did not relate any complaints on the scene. The building was determined to be a total loss.

Fire Investigators from the Baltimore County Police Department's Fire and Explosion Investigation Team determined the cause of the fire to be incendiary and a suspect was arrested on the scene. He subsequently pled guilty to Second Degree Arson and received a five-year suspended sentence.

Following the event, Fire Chief Joanne Rund appointed an After Action Review Team to review the incident in detail, determine the sequence of events which led to the MAYDAY, highlight strengths, and provide recommendations for future improvement. This group was comprised of members from all facets of the Baltimore County Fire Department, investigators from Maryland Occupational Safety and Health, and renowned industry experts in fire safety and fire behavior.

It is worth noting that many of the conclusions drawn and recommendations made by the After Action Review Team continue to be challenges for the Baltimore County Fire Department. The National Fallen Firefighter's Foundation identifies four key areas which influence the root causes of line of duty deaths: Leadership, Accountability, Culture, and Knowledge (LACK). Indeed, many of these same factors played a role on this particular incident; specifically:

Leadership– The department lacks a sufficient span of control of command officers (battalion chief and above) and safety officers to adequately effect change, build relationships, or manage complex incidents without relying on off-duty personnel.

Accountability– Personnel operating on the fireground must ensure that they are disciplined and performing actions which are expected and driven by policy. If policy must be deviated from, it must be communicated and approved by the incident commander.

Culture– The fire service culture must emphasize the importance of firefighter safety, health, and wellness. This is an inherently dangerous profession which requires every member to assist in mitigating risk.

Knowledge– Knowledge of fire behavior– and best practices related to its effective extinguishment– are important now, more than ever. Every firefighter and fireground officer must avail themselves to training on this topic.

OVERVIEW OF THE BALTIMORE COUNTY FIRE DEPARTMENT

Fire Station in the County Seat of Towson, Maryland.

The Baltimore County Fire Department (BCoFD) is an all-hazards, professional agency serving the largest and most geographically and demographically diverse jurisdiction in the Baltimore Metropolitan area. BCoFD, together with 29 volunteer companies organized under the Baltimore County Volunteer Firefighter's Association, provides fire suppression, EMS, and rescue services to nearly 850,000 residents and visitors. BCoFD also provides mutual aid to neighboring jurisdictions and is one of the largest combined (career/volunteer) fire services in the United States.

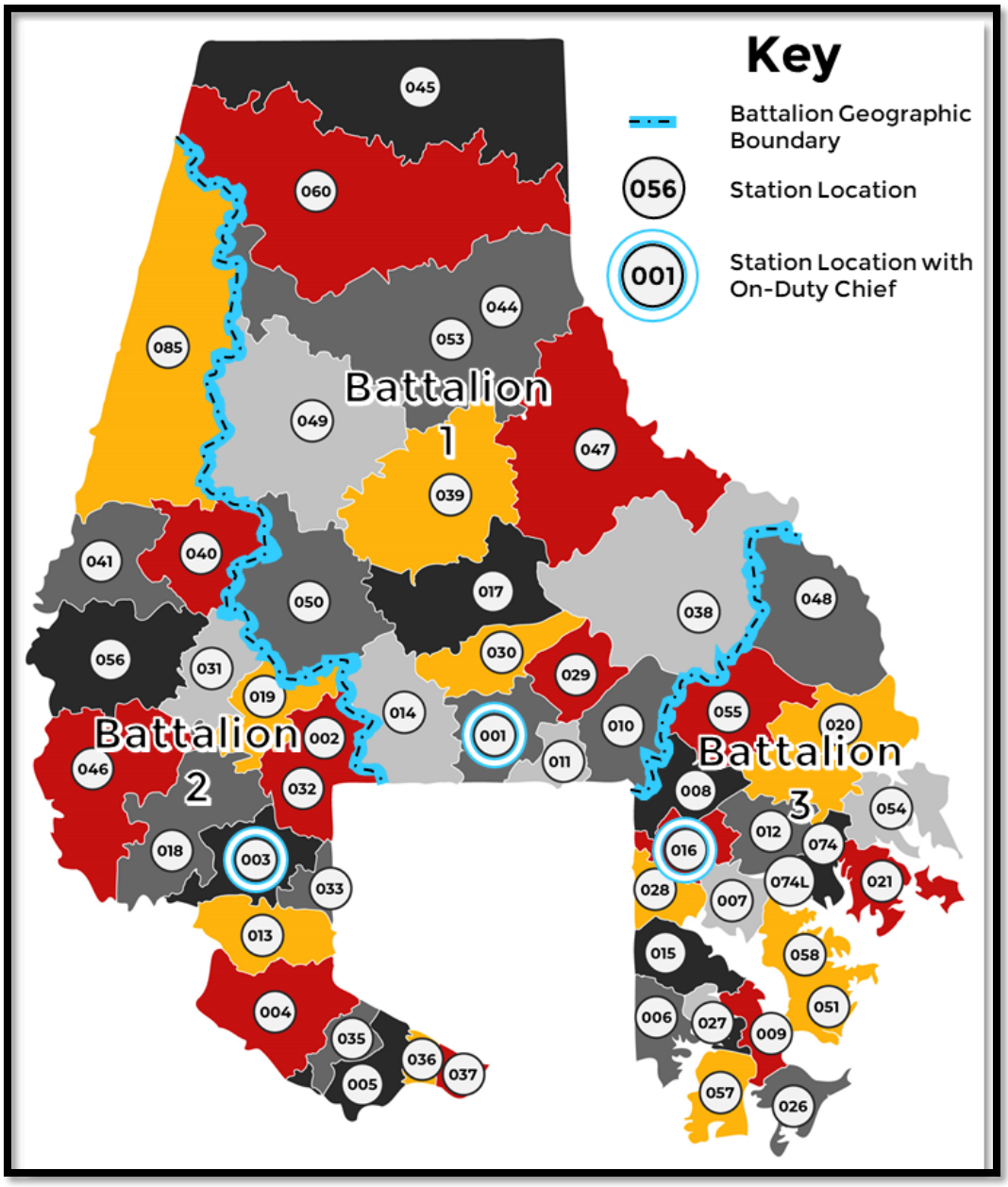
Baltimore County is the largest suburban jurisdiction in the metropolitan Baltimore region and the third-largest county in Maryland, comprising 682 square miles. It surrounds the City of Baltimore—a separate geopolitical jurisdiction–on three sides. Baltimore County borders Carroll and Howard Counties to the west, Harford County to the east, and Pennsylvania's York County to the north. Its eastern and southeastern regions border the Patapsco River and the Chesapeake Bay, including 28 square miles of water. Much of Baltimore County is suburban. The upper two-thirds of the County is primarily rural, with numerous horse and dairy farms.

The location of Baltimore County within the State of Maryland, in reference to neighboring jurisdictions.

The Baltimore County Fire Department includes an authorized strength of more than 1,000 paid emergency response personnel, housed at 25 career stations. These career responders work at fire and rescue scenes alongside volunteer responders from the county's 29 volunteer fire stations. More than 2,000 citizens volunteer in the fire service as active responders and support personnel. Though each volunteer company is an independent, non-profit corporation, Baltimore County has a true joint fire service, with dedicated career and volunteer responders working together at emergency scenes every day on behalf of county citizens.

The County is broadly divided into three geographical areas, which are known as a battalion. Each battalion has four shifts at each fire station which rotate to provide 24-hour, continuous staffing. Each shift is managed county-wide by a deputy fire chief, who is also responsible for the first (central) battalion. The second (west) and third (east) battalions are each managed by battalion chiefs. Each of the three on-duty chief officers is roughly responsible for a 218 square mile response area and 18 fire stations. Baltimore County firefighters, paramedics, and emergency medical technicians respond to approximately 142,000 incidents annually. More than 70 percent of the incidents involved EMS work.

The county's response areas are defined geographically by the closest fire station—whether career or volunteer. The graphic below shows these areas:



Apparatus available to serve county citizens include:

71 Engines

28 Career / 43 Volunteer

10 Trucks

6 Career / 4 Volunteer

57 Medic Units

35 Career / 22 Volunteer

2 Tower Ladders

1 Career / 1 Volunteer

9 Heavy Rescue Squads

9 Volunteer

1 Urban Search & Rescue

1 Career

3 Hazmat Units

3 Career

1 Decontamination Unit

1 Career

9 All-Terrain Vehicles

1 Career / 8 Volunteer

3 Bariatric Medic Units

3 Career

40 Brush Units

24 Career / 16 Volunteer

37 Utility Vehicles

37 Volunteer

16 Special Units

16 Volunteer

4 Tanker Trucks

1 Career / 3 Volunteer

2 Marine Emergency Teams

9 Volunteer Marine Units

1 Dive Rescue Unit

1 Volunteer

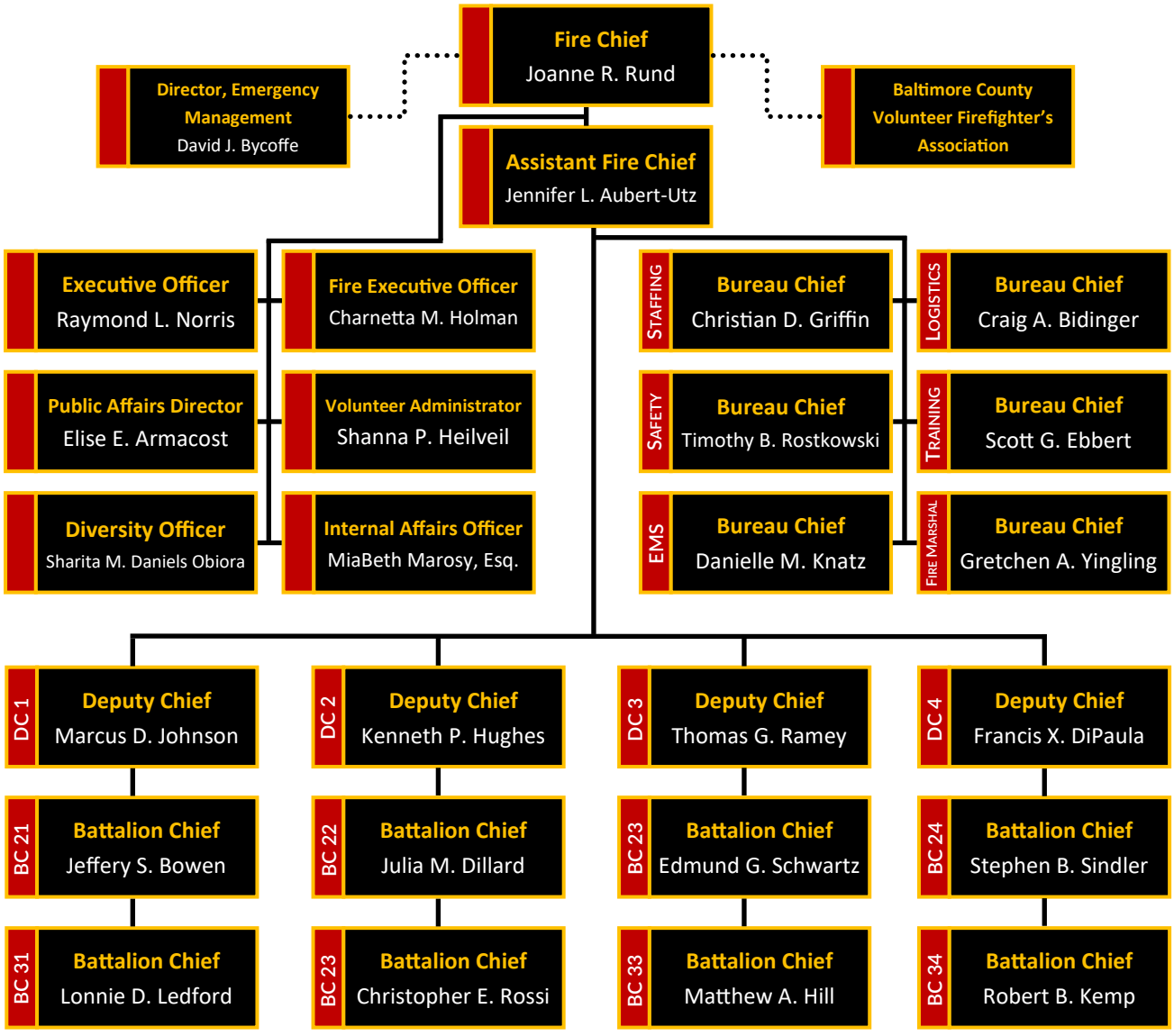
3 Air Units

3 Career

2 Rehab Companies

2 Volunteer

Oversight and administration for the Fire Department is provided by a team of chief officers and executive civilian staff. These positions are highlighted below:



Front-line personnel are supported by six support service bureaus. These bureaus are comprised of both uniformed and civilian personnel who are dedicated to supporting the mission of the Fire Department. They are:

- **The Training and Education Bureau.** The Training and Education Bureau is responsible for initial recruit training for new employees as well as recurrent training for all career and volunteer members of the department. The main campus is the Baltimore County Fire-Rescue Academy in Sparrows Point, Maryland. This facility houses classroom space, office space, a full-service Class "A" burn facility, and other training props. Additional classroom space is available at the Stevenson University's Greenspring Campus in central Baltimore County. The bureau has an authorized strength of ten uniformed instructional positions and two civilian support positions.

The Fire-Rescue Academy's Class "A" Burn Facility in Sparrows Point.

- **The Emergency Medical Services Bureau.** The EMS Bureau is responsible for the coordination of advanced and basic life support services in Baltimore County. Working side-by-side with field operations, they are responsible for coordination of daily operational considerations related to EMS. The bureau staffs the Integrated Community Assessment Referral Evaluation (ICARE) Team with a full-time EMS captain and a public health nurse administrator. This team identifies at-risk patients and connects them to community services to address their needs. The bureau has an authorized strength of three uniformed officers, one part-time medical director (physician), one full-time registered nurse, and one civilian support position. They are supplemented by eight field EMS captains and 24 field EMS lieutenants who work in field operations as first-line supervisors.

- **The Health and Safety Bureau.** The Health and Safety Bureau mitigates the department's risk in an inherently dangerous profession. By providing operational support to the field, they ensure that personnel on critical incident scenes are operating safely and in line with best practices. The bureau also manages all aspects of the department's risk management, vehicle accident, and personnel injury programs. They have an authorized strength of two full-time uniformed officers, four ad-hoc field safety officers, and one civilian support position.

- **The Staffing Bureau.** The Staffing Bureau ensures that the department's overall force is effectively deployed. By coordinating station and shift transfers and monitoring budget practices, the Staffing Bureau provides high-level insight to the Fire Chief's Office about best practices related to personnel matters. The bureau has an authorized strength of one uniformed bureau chief and one civilian support position.
- **The Logistics Bureau.** The Logistics Bureau manages the department's fleet of apparatus, coordinates the acquisition and distribution of needed supplies, manages the department's fixed facilities, and houses a self-contained breathing apparatus (SCBA) repair and maintenance shop. The Logistics Bureau is based out of Glen Arm, Maryland. This facility encompasses the department's supply warehouse as well as the Fire Maintenance Division of Baltimore County Equipment Operations and Maintenance (EOM). The bureau has an authorized strength of three uniformed personnel, two civilian SCBA Repair Technicians, and seven civilian support positions.
- **The Bureau of the Fire Marshal.** The Bureau of the Fire Marshal is responsible for the preventive inspections of businesses, places of assembly, County buildings, educational and health institutions and other occupancies for compliance with the Baltimore County Fire Prevention Code. In Baltimore County, the fire marshal is not responsible for fire origin and cause investigations; however, they may order corrective action and levy civil penalties. The bureau has three offices– Central (located at the Public Safety Headquarters in Towson), East (located at the Perry Hall Fire Station), and West (located at the Woodlawn Fire Station). The bureau has an authorized strength of three uniformed officers, 12 uniformed fire marshals, and two civilian support positions.

The municipal water system in Baltimore County is maintained by the City of Baltimore's Department of Public Works. The City of Baltimore is a separate, independent political jurisdiction which is surrounded by Baltimore County to the west, north, and east. Urban and suburban regions of the county are served by this public network which includes fire hydrants. The northern third of the County, as well as some areas in the northwest and far east, rely on rural water operations to deliver water to incident scenes.

REPORT METHODOLOGY

Immediately after the incident, the deputy chief assigned to the fire assembled a team of personnel to conduct a formal after action review consistent with Baltimore County Fire Department SOPs. Based on a desire to have an objective view of the events that took place, the Chief of the Fire Department elected to appoint a different chief officer as the chairperson to coordinate the review. The deputy chief remained on the team as an advisor and recused himself from discussions related to incident command and the management of the MAYDAY.

The After Action Review Team gathered a wide variety of data to fully understand the sequence of events which unfolded during this incident. Information reviewed included:

- Departmental Standard Operating Procedures, General Orders, and Safety Bulletins
- Scene photographs
- Videos obtained during the incident
- Written statements from personnel who responded to the incident
- Recorded audio of the 911 calls and all available fire department Talkgroups (1-Main, 4-West, 22-Primary Tactical, and 23-Secondary Tactical)
- Floor plans of the structure obtained from the business
- The Police Fire and Arson Team origin and cause investigation
- Fire inspection and permitting records
- Video and audio recorded on thermal imaging cameras (TIC)
- Departmental staffing records
- Official NFIRS incident report
- Side-by-side comparison of the current computer-aided dispatch (CAD) software with Motorola PremierOne CAD software
- MSA G1 Self-Contained Breathing Apparatus (SCBA) and A2 Accountability System records
- Personal Protective Equipment (PPE) worn by the MAYDAY lieutenant

Additionally, an interview team consisting of Detective Sergeant Vaccaro, Chief Brinkley, and Captain Fenush conducted over 40 recorded interviews with all members of the first alarm and key incident command personnel on the incident. These interviews included post-incident walk-throughs of the location to better understand where

responding members were located during critical phases of the incident.

All available information was compiled and uploaded into Microsoft Teams to allow all team members with on-demand access to the incident files. Weekly meetings were conduced with team members to discuss all aspects of the response, with a focus on four key incident phases: (1) 911 call to first unit arrival, (2) first unit arrival to MAYDAY activation, (3) the MAYDAY itself, and (4) conclusion of the MAYDAY to incident stabilization. Each meeting was transcribed and meeting minutes were obtained.

As the team worked through all phases of the incident, they sought to highlight STRENGTHS– or those events which went well and FINDINGS– those events which require additional follow-up or action. These findings were categorized based upon their level of urgency and used to develop the key recommendations from this incident. Where immediate corrective action could be taken, the committee facilitated those changes. As such, some of the findings in this report have either already been addressed or are in the process of being addressed.

The After Action Review Team met to review the incident and discuss findings on the following dates:

July 24, 2023, 1800-1930
July 31, 2023, 1800-2030
August 14, 2023, 1800-2000
August 21, 2023, 1800-2045
August 28, 2023, 1800-2045
September 5, 2023, 1800-2045
September 11, 2023, 1800-2030
September 18, 2023, 1900-2045
October 9, 2023, 1830-2030
October 30, 2023, 1800-2030
November 6, 2023, 1800-2030
November 13, 2023, 1800-1945
December 18, 2023, 1800-1945
January 15, 2024, 1800-1915

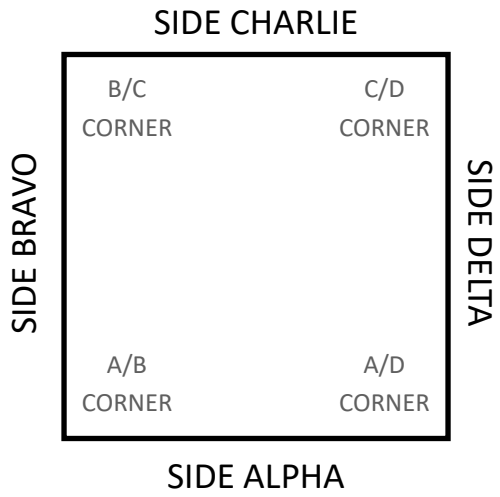
Recognizing that the goal of this project is to learn from the incident in order to make improvements to the department's operations, it became apparent that additional assistance would be needed. To this end, an After Action Review Implementation Team was formed to carry forth the recommendations of this report and to facilitate meaningful change.

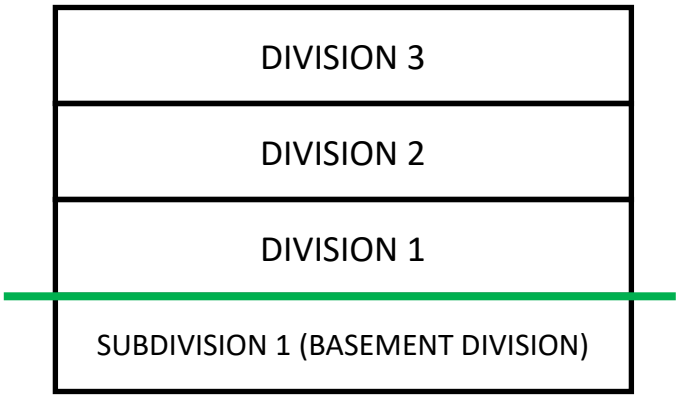
TERMINOLOGY

GENERAL NOTES:

1. All of the times used in this document are expressed utilizing the 24-hour clock.

2. The Baltimore County Fire Department designates the front (address) side of a structure as "Side Alpha". The remaining sides are labeled "Bravo," "Charlie," and "Delta" in a clockwise format. Floors are assigned as "Divisions" with the ground floor being designated "Division 1," the second floor being designated "Division 2," and so on. This is highlighted below:





3. Areas adjacent to the original building on fire are known as "Exposures," and are labeled according to their proximity to the side of the original fire building. This is highlighted below:

Exposure "Bravo 2"	Exposure "Bravo" or "Bravo 1"	Original Fire Building	Exposure "Delta" or "Delta 1"	Exposure "Delta 2"

4. Riding positions on apparatus, along with their function, radio designation, radio identifier, and Self-Contained Breathing Apparatus (SCBA) pack number are highlighted below:

For an Engine, "**Engine 1**"

Position: Driver Function: Driver/Pump Operator Radio Designation: "Engine-1 Driver" Portable Radio Identifier: E1-4 SCBA Pack Number: E1-4	**Position: Officer** Function: Crew Leader Radio Designation: "Engine-1" Portable Radio Identifier: E1-1 SCBA Pack Number: E1-1
Position: Backup Function: Backup Firefighter Radio Designation: "Engine-1 Backup" Portable Radio Identifier: E1-2 SCBA Pack Number: E1-2	**Position: Nozzle** Function: Nozzle Firefighter Radio Designation: "Engine-1 Nozzle" Portable Radio Identifier: E1-3 SCBA Pack Number: E1-3

For a Truck, "**Truck 2**"

Position: Driver Function: Driver/Outside Team Radio Designation: "Truck-2 Driver" Portable Radio Identifier: T2-4 SCBA Pack Number: T2-4	**Position: Officer** Function: Crew Leader/Inside Team Radio Designation: "Truck-2" Portable Radio Identifier: T2-1 SCBA Pack Number: T2-1
Position: Search Firefighter Function: Search/Inside Team Radio Designation: "Truck-2 Search" Portable Radio Identifier: T2-2 SCBA Pack Number: T2-2	
Position: Tiller Function: Outside Vent/Outside Team Radio Designation: "Truck-2 OV" Portable Radio Identifier: T2-3 SCBA Pack Number: T2-3	

Commonly Utilized Terms

ADO—*Administrative Duty Officer*; the uniformed position staffed at Fire Dispatch which serves as a liaison between the Fire Department and civilian dispatchers.

BIR—*Brief Initial Report*; an initial radio report made by the first arriving unit to advise incoming units of observed conditions. This report typically consists of supply line layout instructions, building type/size/construction, observed fire and/or smoke conditions, initial attack strategy, and a declaration of incident command.

Box Alarm / Box Assignment—a complement of apparatus dispatched to a fire emergency. A commercial building fire typically consists of one (1) command officer, four (4) fire engines, two (2) trucks, one (1) squad, (1) command engine, and one (1) EMS transport unit.

Buddy Breathing—a technique where two firefighters are able to connect their SCBA together in order to breathe air. It is an emergency rescue tactic that is utilized when one firefighter becomes low on air.

Callback—an overtime shift outside of a member's normally assigned schedule.

Command Engine—an additional engine company assigned to certain high-risk assignments to assist the incident commander with carrying out command functions.

Detail—a temporary assignment during the same shift as the member, but at another station; utilized when staffing vacancies occur prior to awarding overtime shifts.

Division—an organizational level having responsibility for operations within a defined geographic area.

Dual Dispatch—an internal process whereby an additional piece of apparatus is automatically added to a call when a volunteer unit is due because of demonstrated poor response or rates. A unit is placed on dual dispatch when they demonstrate at least a 15% no-response rate and/or at least a 30% late or short response, including the no response rate, if applicable.

Engine—a vehicle designed to carry water and hose whose task is to extinguish fire.

Group—an organizational level responsible for a specified functional assignment at an incident (ventilation, salvage, water supply, etc.)

IDLH—*Immediately Dangerous to Life and Health*; refers to hazardous atmospheres that firefighters typically operate in during the course of their duties.

LUNAR—*Location, Unit, Name, Assignment, Resources Needed*; an acronym for firefighters to remember the key pieces of information to transmit when declaring a MAYDAY.

OIC—*Officer in Charge*; the officer responsible for a specific unit (either a lieutenant or captain).

MAYDAY—a term which indicates that one or more fire service personnel are in a life-threatening situation and need immediate help.

PAIR Check—*Pre-Entry Accountability IDLH Radio Check*; a radio announcement made by a crew entering an IDLH to ensure that the SCBA has successful Bluetooth connection with the portable radio, that the member is operating on the correct talkgroup, and to enable situational awareness and accountability of the crew for the incident commander.

PAR—*Personnel Accountability Report*; a roll-call of units to determine that all personnel have been accounted for. Also utilized to indicate that the crew is intact (e.g. "E2 is PAR.")

PASS—*Personal Alert Safety System*; an audible signal, integrated into the SCBA, which allows firefighters in distress to locate one another in visually obscured environments.

PAT—*Personnel Accountability Tag*; an identification card that has a snap ring hook and includes the name, ID number, and photograph of a member.

PPE—*Personal Protective Equipment*; the ensemble of specialized clothing and SCBA meant to be worn by firefighters to protect them from the hazards of an IDLH atmosphere.

PPV—*Positive Pressure Ventilation*; a practice of introducing positive air pressure, typically via a fan, into a structure to clear out smoke.

Rapid Intervention Task Force—an assignment consisting of an additional Engine Company, an additional Truck or Squad Company and ALS medic unit. If these companies are assigned as part of the working fire dispatch, they are to serve as the initial RIT task force.

RIT—*Rapid Intervention Team*; a rescue team of firefighters given the specific task of rescuing other firefighters in distress. In Baltimore County, the fourth arriving engine assumes the duties of RIT.

Squad—A special service vehicle designed to carry equipment and personnel specializing in rescue situations.

SCBA—*Self-Contained Breathing Apparatus*; an atmosphere-supplying respirator used by firefighters for which the breathing air source is designed to be carried by the user.

Talkgroup—An exclusive radio channel designated on the Department's 800-MHz radio system.

TIC—*Thermal Imaging Camera*; a piece of equipment carried by firefighters (typically the officer) which utilizes heat signatures and infrared technology to distinguish objects in limited-visibility environments.

Truck—A special service vehicle designed to carry a complement of ground ladders as well as a larger aerial ladder.

Tower—A special service vehicle identical to a truck, but with a bucket on the end of the aerial ladder designed for holding personnel.

Working Fire—a term used to announce/request the dispatch of additional pre-determined units to the scene of a confirmed working incident. A Working Fire Dispatch consists of an additional Engine Company, an additional Truck or Squad Company, and advanced life support transport unit, an Air Unit, a Canteen/Rehab Unit, and the on-call safety officer. A working fire assignment incorporates the RIT Task Force Assignment.

INCIDENT INFORMATION

The Baltimore County 911 Center, following the National Academy of Emergency Fire Dispatch protocol, coded this event type as a **69D3-Commercial Building Fire**. The Baltimore County Fire Department's standardized running assignment for this event type is:

One (1) Battalion Chief
Four (4) Engine Companies
Two (2) Truck Companies
One (1) Basic or Advanced Life Support Transport Unit
One (1) Command Engine

Each box area has a specific station order for dispatch. The Computer Aided Dispatch system assigns units to calls based upon their capabilities and in sequence of this station order. Box Area 56-4 calls for the following station order:

56	41	40	31	19	46	50	2	18	32	85	CC 13	CC 9	49	3	14	CC 12	33	CC 2	13

"CC" indicates a Carroll County station which is requested through mutual aid.

Some of the companies due on the initial alarm are on the Dual Dispatch Protocol and were, therefore, backed up by additional units. It should be noted that on this incident, no command engine was dispatched as part of the initial alarm. The dispatched station order, as well as the actual arriving sequence, is highlighted below:

	1st Due Engine	2nd Due Engine	3rd Due Engine	4th Due Engine	5th Due Engine	6th Due Engine	7th Due Engine	1st Due Truck	2nd Due Truck
Dispatch Order	E56	E412	E401 E312 **E19**	E464 **E503**	E2	E18	E321	T404	T313 **T18**
Actual Arrival	E56	E413	E18	E2	E19	E503	E3	T18	T404

In the **Dispatch Order** row, units in **BOLD** are those units which were due to back-up units on Dual Dispatch. Those units shaded **GREEN** were units due on the initial first alarm. In the **Actual Arrival** row, units shaded **BLUE** arrived out of the expected order.

The Baltimore County Fire Department's SOPs dictate unit actions to be taken according to their arrival order on-scene. While it is common for minor deviations between dispatch order and arrival sequence to take place, there was a significant disparity on this incident. This was further complicated by the fact that staffed units are dispatched to re-

place units which are on the Dual Dispatch Protocol.

Tactical

08

Generally, according to Tactical Operations Manual #8, units arriving on-scene are expected to assume the following duties:

- **First Arriving Engine:** Initiate constant water supply, assume command function, and place a primary attack line in service to achieve fireground objective.
- **Second Arriving Engine:** Complete the water supply for the first arriving engine (e.g. position on the hydrant).
- **Third Arriving Engine:** Position on Side Charlie unless the second arriving engine has done so.
- **Fourth Arriving Engine:** Assume responsibilities as the rapid intervention team.
- **Fifth Arriving Engine:** Assume responsibilities as the command engine.
- **First Arriving Truck:** Position on Side Alpha.
- **Second Arriving Truck:** Position on Side Charlie, if it is accessible and assist the first arriving truck.

As an example, on this particular incident, Engine 19 is fifth due on the station order for this box area. This assumes that all engines on the dispatched alarm were to respond fully staffed. Therefore, E19 would expect to arrive and assume the command engine responsibilities. However, because E19 was backing up E401 and E312 (who are both on dual dispatch), they prepared to assume third engine responsibilities while enroute. To further complicate this, while still enroute, the dispatcher advised command that E19 would be the RIT Engine. According to the radio transmissions and dispatch transcript, E19 arrived three seconds behind E2, making them the fifth arriving engine (and therefore, would be expected to assume the fifth-due responsibilities of the command engine). On this particular incident, no command engine was identified or assigned.

DISPATCH INFORMATION

The Baltimore County 911 Communications Center is one of three largest Public Safety Answering Points (PSAP) in the State of Maryland. The Center receives an average of 2,200 calls per day and employs nearly 200 dedicated civilian emergency telecommunicators within the Office of Budget and Finance. There are four shifts (A, B, C, and D) which work twelve-hour shifts from 07:00 to 17:00 or 17:00 to 07:00 on a four-day cycle (four days on/ four days off). Employees change between day and night shifts every 17 weeks (three times a year).

All civilian employees are certified by the International Academies of Emergency Dispatch as Emergency Telecommunicators, Emergency Fire, Police, and Medical Dispatchers (ETC, EFD, EPD, and EMD). Additionally, employees have completed National Incident Management System courses through FEMA and are certified as Emergency Medical Dispatchers through the Maryland Institute for Emergency Medical Services Systems.

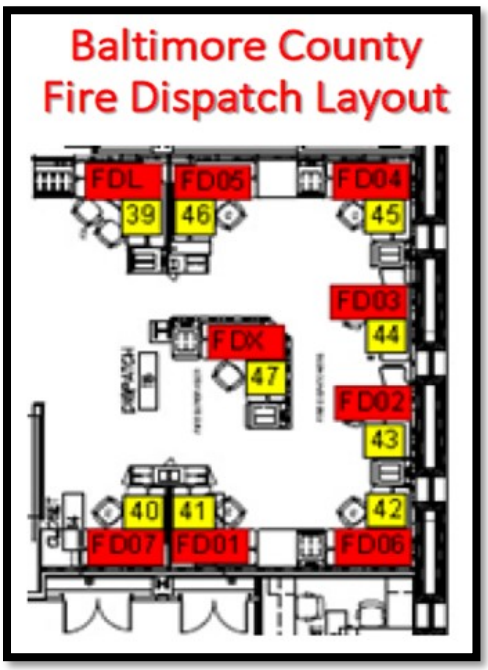
At the time of this incident, the Center was utilizing a computer-aided dispatch system which had been designed as an in-house, enterprise solution. Baltimore County has since replaced this system with the Motorola PremierOne Computer-Aided Dispatch (CAD) software for call-taking, police, and fire dispatch. Dispatchers and field units operate on a P25-compliant Motorola 800 MHz digital trunking system with twenty available frequencies. Field units have the ability to operate on a multitude of channels known as "talkgroups."

The Baltimore County 911 Center encompasses the 911 call takers, police dispatchers, and fire dispatchers. Fire Dispatch operates with seven dispatchers, including a civilian supervisor. These positions are responsible for the following functions:

FD01 Primary operator for the Main Talkgroup. This position dispatches 911 calls over the air, monitors the status for all units, and alerts transfers.

FD02 Primary operator for the Central Talkgroup. This position coordinates units assigned to calls within the Central (First) Battalion from response to in-service.

FD03 Primary operator for the East Talkgroup. This position coordinates units assigned to calls within the East (Third) Battalion from response to in-service.



FD04 Primary operator for the West Talkgroup. This position coordinates units assigned to calls within the West (Second) Battalion from response to in-service.

FD05 Monitors the FMARS (mutual aid) radio for incoming requests or status change notifications from surrounding jurisdictions. This position is also the primary dispatcher to handle tactical channels when a chief officer is assigned to the call.

FD06 Backs up the FD01 console and will assist in dispatching calls. The position will also answer the telephone and respond to mutual aid requests if FD05 is busy.

FD07 This position is a spare console that can be utilized for training or for times when extra personnel are available to assist in high volume or complex incidents.

FDX The FDX is the civilian supervisor in fire dispatch. They monitor all fire dispatchers and the activity on all talkgroups. They make decisions about running assignments, as needed, handle administrative tasks, assist dispatchers with questions, and monitor the room for any needs.

FDL The FDL, or Fire Dispatch Liaison, is also known as the Administrative Duty Officer (ADO). This position is staffed with a uniformed career member of the Baltimore County Fire Department. Their shift schedule coincides with the field shift they are responsible for (A, B, C, or D). They monitor and handle requests from the field units, serving as the liaison between the Fire Department and Fire Dispatch personnel. They are not responsible for any incident dispatching, but will work with the civilian supervisor to prioritize calls and running assignments.

Of particular note on this incident was the time delay from receipt of the 911 call to the dispatch of units on the assignment. While it is further explained in **[Finding #10]**, the 911 Center was operating under their Standard Operating Procedures which prioritized any incident determined to be medical in nature. Furthermore, the Fire Department worked with the 911 Center to determine an "Early Dispatch" protocol, whereby the send points for dispatch were much earlier than in other jurisdictions. The downside to this protocol is that it is often based upon incomplete information obtained by the 911 call-taker.

There were many lower-priority calls which were dispatched ahead of this incident; however, due to the early dispatch protocol the dispatcher was unaware of the actual severity of the call. As the 911 Center was preparing for a transition to a new Computer-Aided Dispatch software, the Team asked for a side-by-side comparison between the enterprise solution and Motorola P1 CAD.

The Fire Communications Division was able to load all of the waiting summaries with their associated call types into the system based upon the time they were received. There were four calls which were received after, but dispatched prior to, the Commercial Building Fire based upon the "life over property" prioritization.

CC#	EA TIME	D TIME	UPDATED EVENT TYPE	INITIAL COMMENTS	ADDRESS
231992006	21:21:22	21:21:28	1D1ABD	BEHIND LOC; M FRIEND HAS ABD PAIN	7 CHATTUCK CT
231992008	21:22:17	21:22:25	17B1FALLG	M FELL	1238 PUTTY HILL AVE
231992010	21:22:42	21:22:50	10D2CP	41YO SON IS UNWELL... HE IS HAVING TRBR, UNABLE TO MOVE. FEELS LIKE SOMETHING IS SITTING ON HIS CHEST	8208 ANALEE AVE
231992015	21:25:06	21:25:37	31C1UNC	TP NOT VERIFIED; CLR IS DIZZY; FALLING; CP; ABDOMINAL PAIN	8600 WILLOW OAK
231992032	21:35:53	21:36:45	31C1UNC	CLR ADV FOUND F LAYING ON GROUND	YORKWAY & WILLOW SPRING
~~231992033~~	~~21:36:00~~	~~NO DISP~~	~~31C1UNC~~	~~SUBJ PASSED OUT WF 50 YOA, ABNORMAL BREATHING~~	~~YORKWAY & WILLOW SPRING~~
231992034	21:36:15	21:44:11	69D3STRUC	ADVANCED AUTO PARTS IS ON FIRE	11909 REISTERSTOWN RD
231992036	21:36:41	21:38:48	17A2FALL	73 YO SISTER IN LAW TRIPPED A FEW HOURS AGO, SHE IS UNABLE TO WALK DUE TO HIP INJURY	2505 EUGENE AVE
~~231992037~~	~~21:36:45~~	~~NO DISP~~	~~69D3STRUC~~	~~LOC FROM COMMON NAME; THINKS ADVANCED AUTO PARTS IS ON FIRE~~	~~11917 REISTERSTOWN RD~~
231992039	21:37:23	21:37:50	6D2TRBRA	CLR ADV WIFE HAS COVID; SOB	1817 FORREST RD
231992041	21:39:20	21:40:50	25A1PSYV	MOTHER IS LOOKING FOR THINGS SHE CAN NOT FIND, SHE IS ACCUSING EVERYONE OF POISONING HER AND THREATENED	5656 BRAXFIELD RD
231992042	21:40:47	21:41:28	11A1CHOKF	BABY IS CHOKING	2303 LAWNWOOD CI
231992044	21:41:19	21:41:29	3A1BITE	WALK IN ANIMAL BITE (Doesn't appear to be dispatched on air, this was a walk-in to the station)	609 COMPASS RD
231992048	21:45:29	21:47:38	31D2UNC	IFO BUS STOP: M SUBJ POSS UNCON ON GROUND IFO QUICKMART	WISE AVE & LYNCH RD

A screen view of the enterprise computer-aided dispatch software in use at the time of the fire. Calls for service were manually prioritized by the dispatcher in accordance with Standard Operating Procedures.

When the same summaries were loaded into Motorola P1 CAD, the system automatically prioritized the calls based on internal protocols. This call shows in the new system as a "Priority 1" call, meaning it is given the highest priority for dispatch. These calls are bumped to the top of the call waiting queue and are highlighted in orange. If they are not dispatched in a pre-determined amount of time, the call begins to flash, alternating between black and orange.

2 Waiting Summaries(7)

CC #	BEAT	EVENT TYPE	CALL LOC	PRIORITY
0003	056-04	SFCOMM	11909 REISTERSTOWN RD	1
0005	056-04	SFCOMM	11917 REISTERSTOWN RD	1
0006	011-10	TRBRD	1817 FORREST RD	2
0002	006-07	UNCTRBR	YORKWAY & WILLOW SPRING RD	3
0004	026-07	FALLA	2505 EUGENE AVE	5
0007	005-12	PSYCHA	5656 BRAXFIELD RD	5
0008	003-04	CHOKEA	2303 LAWNWOOD CIR	5

A screen view of the Motorola P1 CAD software, currently in use by the Baltimore County 911 Communications Center and the Baltimore County Fire Department.

The After Action Review Team is satisfied, based upon this side-by-side comparison, that the dispatch delay issue has been rectified. This finding is further addressed later in this report.

STAFFING

Career staffing is provided 24-hours a day, 7 days a week, 365 days a year at career stations. With the exception of 2 engine companies and 10 medic units which are staffed at peak times, all career units are staffed around the clock. A dedicated driver is also provided 24-hours a day for Tanker 56 (Franklin Fire Station) and Hazmat 114 (Brooklandville Fire Station). Volunteer units are staffed based on the availability of personnel. Some units are automatically backed up according to the dual dispatch protocol (see the Dispatch Information Section). Others are afforded three minutes to confirm their response. If they fail to respond, they are automatically backed up with the next due unit.

All career-staffed fire suppression equipment (engine companies and truck companies) are staffed with a minimum of four (4) fireground-entry capable personnel, including one officer (captain or lieutenant). All personnel hold national certifications as Firefighter 2 (NFPA-1001) and a minimum EMS certification of Emergency Medical Responder (though, the vast majority of personnel are Emergency Medical Technicians). All career-staffed EMS transport units are staffed with a minimum of two (2) personnel, certified to the level of Emergency Medical Technician or Paramedic. The vast majority of the department is cross-trained in both fire suppression and emergency medical services.

When vacancies in staffing occur, personnel can be "detailed" to another assignment within the county. A detail involves the temporary movement of a member to another station, on their same shift, to cover the vacancy. When vacancies further exist, members are assigned voluntary overtime shifts, known as a "callback." These callbacks are assigned based upon a multitude of rules to ensure fairness and equity of overtime opportunities, as well as to ensure minimum staffing numbers are met. Additionally, the department permits unlimited exchange time between members, allowing shifts to be swapped between personnel. UKG TeleStaff is the department's software solution to assign personnel to shifts.

This incident occurred in the middle of the summer during peak vacation season. Numerous details and callbacks had been made for the shift during which this event occurred. Every career unit dispatched on the first alarm responded with personnel who were either exchanged in, detailed, or called back to their position. This practice can affect crew cohesion and would lead to confusion on the fireground as to who was actually assigned to what piece of apparatus **[Findings #3, #4, #5]**. Of significant importance is that the lieutenant who experienced the MAYDAY was called back to his position on T18. The two Fire Apparatus Driver/Operators (FADOs) who ultimately effected the rescue were called back to other apparatus, but all three individuals are normally assigned together on another shift.

WEATHER CONDITIONS

Weather conditions observed at the Carroll County Regional Airport in Westminster, Maryland (KDMW– 14.85 miles northwest) from 21:25 until 23:45 on July 18, 2023 were as follows:

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
21:25	81 °F	64 °F	58 %	CALM	0 mph	0 mph	29.16 in	0.0 in	Fair
21:45	81 °F	64 °F	58 %	CALM	0 mph	0 mph	29.16 in	0.0 in	Fair
22:05	79 °F	64 °F	61 %	CALM	0 mph	0 mph	29.16 in	0.0 in	Fair
22:25	79 °F	64 °F	61 %	CALM	0 mph	0 mph	29.17 in	0.0 in	Fair
22:45	79 °F	64 °F	61 %	CALM	0 mph	0 mph	29.18 in	0.0 in	Fair
23:05	77 °F	64 °F	65 %	CALM	0 mph	0 mph	29.18 in	0.0 in	Fair
23:20	77 °F	64 °F	65 %	CALM	0 mph	0 mph	29.18 in	0.0 in	Fair
23:45	75 °F	66 °F	73 %	CALM	0 mph	0 mph	29.17 in	0.0 in	Fair

BUILDING CONSTRUCTION AND FIRE CODE SYNOPSIS

The Advance Auto Parts store involved in this incident was a roughly 12,650 square foot one-story, mercantile building with no basement of Type II-B (Unprotected Non Combustible) Construction built in the late 1970s or early 1980s. Elements used included metal framing members, unreinforced masonry unit walls with brick façade or Exterior Insulation and Finish System (EIFS), metal cladding, and unprotected open-web joists. The flat roof was supported by lightweight steel roof trusses, which were covered with metal decking, insulation, and a waterproof membrane. At some point, second-story office space was added to the Charlie-Delta corner of the building, with exterior egress stairs exiting to the Side Charlie. The floor of the second story was composed of exposed wood joists with a wood subfloor supported by unprotected steel columns. The internal stairs leading to these offices were steel with partial/limited fire protection underneath. Post-fire photographs revealed that wood framing and wood furring strips were used in the construction of the second-floor partitions.

A post-incident photograph of the building's brick façade.

Exterior Insulation and Finish System (EIFS) over Concrete Masonry wall. The interior of the far wall is also shown.

The building had delineated areas separated by firewalls. The glass front Alpha Side entrance led into the front retail display area. Leaving the retail space, traveling toward the Bravo-Charlie side of the building through a firewall revealed a rear storage area with an exterior entry door and a roll-up door. Traveling from the Bravo-Charlie rear storage area toward the Delta side of the building through another firewall revealed an additional combination office and storage area, having its own direct outside egress to the Bravo-Charlie quadrant of the structure. The Charlie-Delta storage area also included the aforementioned second-story office space, which consisted of four offices, a bathroom, a conference room, and a breakroom/kitchen.

In 2019 the adjacent Side Delta exposure, Hibachi Grill & Supreme Buffet, was demolished. The exterior of the building received renovations and new signage, including

the addition of an Exterior Insulation and Finish System (EIFS), which is a nonstructural, non-load-bearing exterior wall cladding system comprised of rigid insulation panels attached either adhesively or mechanically, to the substrate and coated with a textured protective finish coating or synthetic stucco.

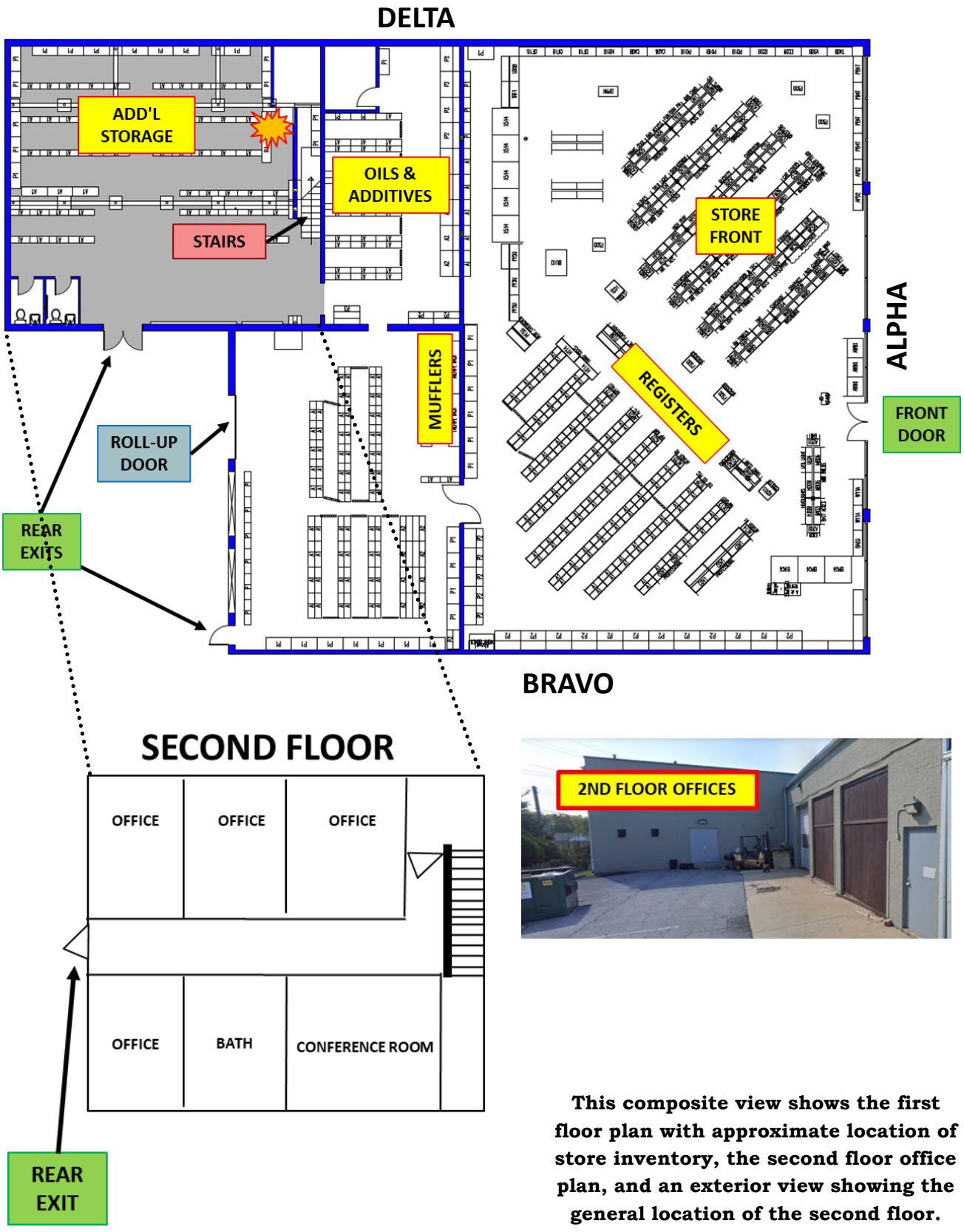
Roof elements include lightweight steel joists, metal decking, insulation, and membrane. The interior block walls bounded the main fire area.

Upon consultation with the Baltimore County Office of Permits, Approvals, and Inspections (PAI), it was learned that The Baltimore County Building Code was in effect from December 1, 1956, to June 18, 1972. On June 19, 1972, Baltimore County adopted the 1970 edition of the Building Officials and Code Administrators (BOCA) International Building Code, which was in effect until March 25, 1982. Neither the 1956 Baltimore County Building Code nor the 1970 BOCA Building Code would have required an automatic fire sprinkler system. The requirement for sprinklers in mercantile structures greater than 12,000 square feet did not show up until the 1978 BOCA Building Code, adopted effective March 1, 1980. Mercantile buildings reviewed and constructed after March 1, 1980, which had portions of the building divided by firewalls to the underside of the non-combustible roof deck, were considered to be separate buildings. Additionally, measurements for the calculation of square footage were allowed to be interior in nature. There were no Life Safety Requirements for a fire alarm system.

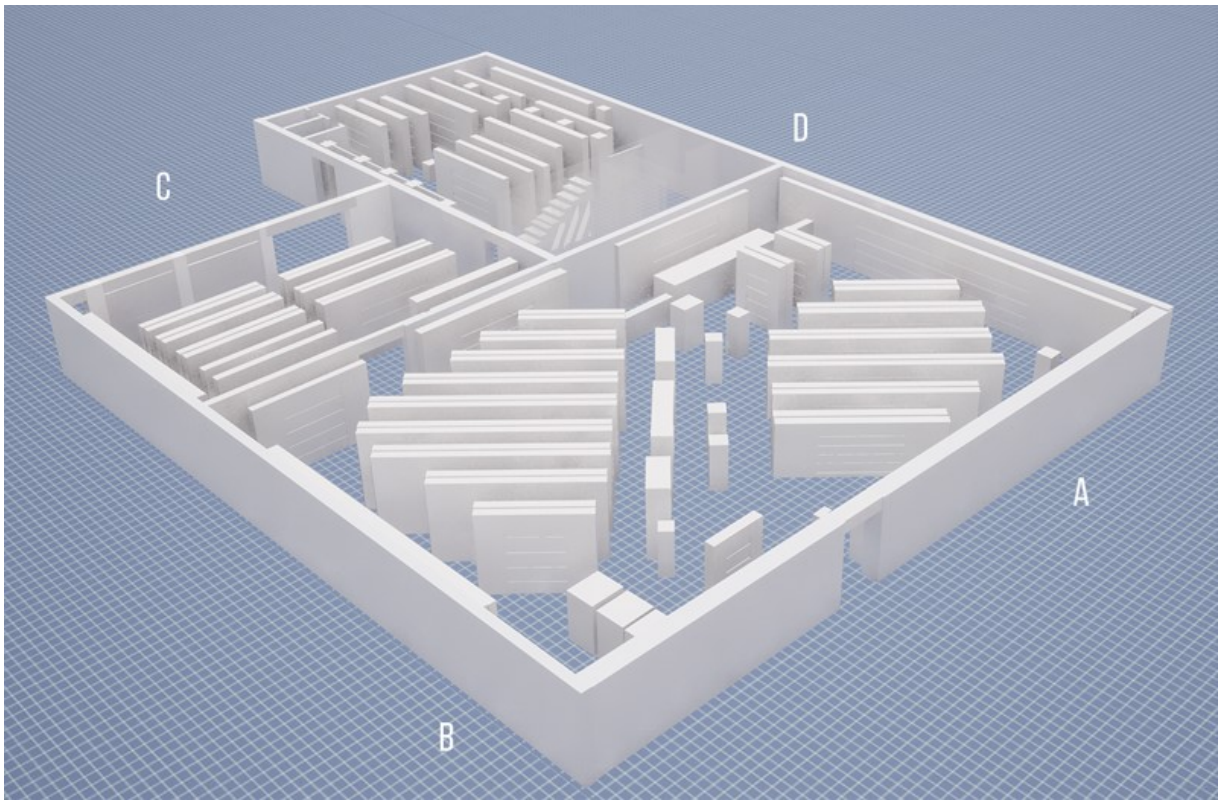
Historical record searches from the Baltimore County Office of Permits, Approvals, and Inspections revealed a total of six permits issued. Permits were issued in 1998, 2004, and 2012. PAI completed inspections to repair or replace the exterior storefront signs. In 2019 and 2020, permits were issued and PAI conducted inspections for the repair/replacement and rewiring of rooftop air conditioning units. No other records, inspections, or citations from PAI's buildings, electrical, or plumbing departments were located. The architect(s) of record could not be discerned from hard copy or electronic records. Multiple attempts were made to contact the commercial real estate company responsible for the property for information, but the results were negative.

Historical record searches from the Baltimore County Office of the Fire Marshal revealed consistent annual fire safety inspections completed through the field inspection program from 2004 through 2022. Inspection reports before that time were not required to be scanned electronically and are no longer available. No significant fire safety violations were ever documented, and minor code violations (i.e., exit lights, extension cords, extinguisher service, etc.) were corrected in a prompt manner.

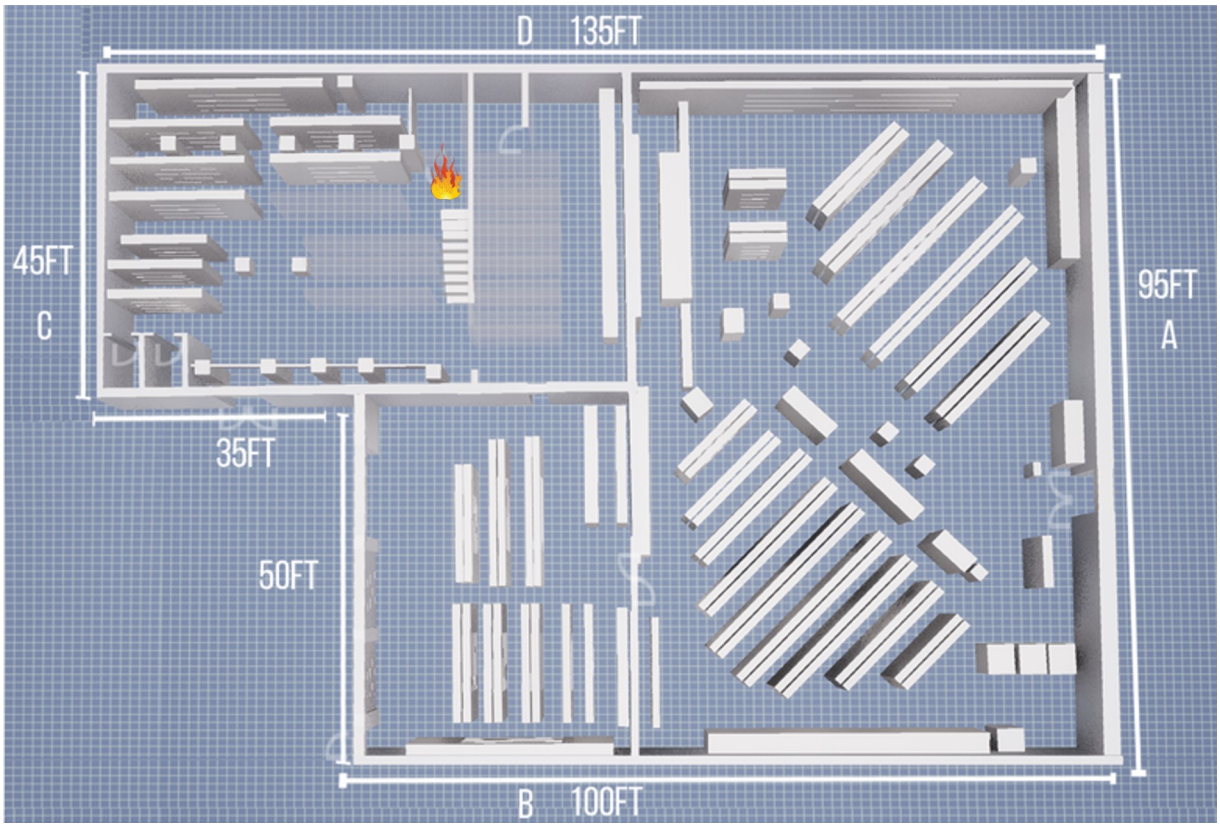
FLOOR PLANS AND DIAGRAMS



This composite view shows the first floor plan with approximate location of store inventory, the second floor office plan, and an exterior view showing the general location of the second floor.



(Above) An isometric view of the first floor of the structure. Please note Side Alpha.
(Below) An isometric overhead view of the first floor plan with the location of the point of origin.



Fireground Operations Sequence

Please note: Findings of this report have been added throughout the narrative and are notated by red numbers in brackets, e.g. **[14]**. Those numbers correlate to the finding number, which is explained later in this report.

A post-incident photograph showing Side Alpha of the structure.

On July 18, 2023, at approximately 21:14, an employee of the Advance Auto Parts (located at 11909 Reisterstown Road), intentionally ignited a fire in the rear stock room of the business. The fire was started in a large storage area closet near the Charlie-Delta corner and in close proximity to a second-floor stairway. This area contained several containers of ready-to-use 2-cycle and 4-cycle synthetic fuels for power equipment, among other combustibles.

At approximately 21:37, the first of three telephone calls was received by the Baltimore County 911 Center. The first call was from an employee of Walgreens, located at 11917 Reisterstown Road. The caller stated that the "Advance Auto Parts is on fire." Shortly after receiving this call, the Administrative Duty Officer in dispatch advised Battalion Chief 2 of a commercial building fire at the Advance Auto Parts location. This practice has been colloquially referred to as a "Pre-Alert." The ADO indicated that the location was in Fire Box Area 56-4, at the intersection of Reisterstown and Cherry Hill Roads, and added that multiple calls were made to the 911 Center reporting the information. The ADO added that there were EMS calls holding in the system, and per the dispatch protocol, they will be alerted first prior to the dispatch of the commercial building fire assignment **[10]**.

Hearing the report on the ADO Talkgroup, Engine 56 called available in their first due response area at 21:37 on the Main Talkgroup. Several other career companies in the Second Battalion heard the "Pre-Alert" from the ADO and began positioning towards the incident location. This caused companies to arrive outside of the normal and expected order. Some personnel reported that this caused confusion regarding their assignments during the initial moments of the incident **[3]**. At 21:42, the E56 officer-in-charge conversed directly with the Talkgroup 22 (primary fireground tactical channel) dispatcher. The E56 OIC requested the working fire assignment and assumed command.

Helmet camera footage at 21:47:52, approximately 7 minutes after Engine 56 had arrived.

In a post-incident interview, the E56 OIC stated that he was detailed to E56 from his normal assignment to cover a vacancy. He reported that the engine company arrived at the incident scene quickly. He initially transmitted the brief initial report on the West Talkgroup and then switched to TG-22. Upon arrival, the E56 OIC stated that he was able to visualize Side Delta and some of Side Charlie and he observed light brown smoke emitting from the center of the building.

E56 laid a 4" supply line into the Reisterstown Shopping Center from a hydrant **[22]**. A 2½" hose line and a 1¾" hose line were deployed by E56 personnel to Side Alpha. The 2½" hose line was never operated on Side Alpha and was later re-deployed to Side Charlie by Engine 2's crew. The E56 OIC used a thermal imaging camera, but eventually handed it off to another firefighter **[1]**. He walked Side Alpha to Side Bravo, which is the Bank of America (Exposure Bravo). The front doors to the Advance Auto Parts were found locked and were subsequently forced open using a "through-the-lock" technique. This enabled the glass door to remain intact to limit the inlet airflow and exhaust from the fire. This also provided the option to use the door for flow path control. The E56 OIC stated that the crew did not make entry as he elected to await additional resources to arrive before taking further action **[22]**.

E56's driver (E56-Mobile) asked the TG-22 dispatcher at 21:44 if additional resources were enroute **[6]**. The dispatcher advised that units were being alerted at that moment and added that medical calls were being dispatched in priority order. At 21:44, command (E56) transmitted a request for a Second Alarm. This was acknowledged by the TG-22 dispatcher.

The initial First Alarm assignment for a "Commercial Building Fire" was dispatched on the Main Talkgroup at 21:45. Units were instructed to respond on TG-22, consistent with current practice and SOPs. At 21:46, command (E56) spoke directly to BC2, reporting a 400-foot by 200-foot, one-story commercial building emitting heavy smoke with a non-involved Bravo exposure. Command (E56) advised 1¾" and 2½" hose lines were charged on Side Alpha, but were not in operation. BC2 asked command (E56) if the involved building was an auto parts store and requested that the Hazardous Materials Team

be added to the assignment [21]. Command (E56) replied, "It's Advance Auto. We are attempting to find the seat of the fire [5, 9] ."

At 21:47, the "Working Fire Profile" request was dispatched as a "Rapid Intervention Task Force." Units were instructed to respond on the West TG, consistent with current practice and SOPs. E413 was the second arriving engine company at 21:47. They were identified as E412 (both E412 and E413 are assigned to the Reisterstown Volunteer Fire Company) in early transmissions, and were given the assignment of Side Charlie [7]. E413 reported to Side Charlie on foot from Side Alpha in a reconnaissance role. They were directed to perform reconnaissance before a hose line was deployed to the rear of the structure [5] . At 21:48, E19 was notified by the TG-22 dispatcher that they were assigned RIT. The E19 OIC acknowledged the RIT assignment.

BC2 arrived on scene at 21:48 and notified the TG-22 dispatcher that he was assuming command [6]. He reassigned the E56 OIC to assume the Side Charlie (Charlie Division) at 21:49, but rescinded the order when he was told by the TG-22 dispatcher that E413 had assumed this role. BC2 then assigned the E56 OIC the safety officer role [2, 3, 4, 5]. E56 had a face-to-face communication with command (BC2) and requested that the safety officer function be reassigned in order for him to remain with his crew during entry to locate the seat of the fire [3, 4, 5] .

The crew of T18 preparing to make entry at 21:50:56. The MAYDAY lieutenant is on the left.

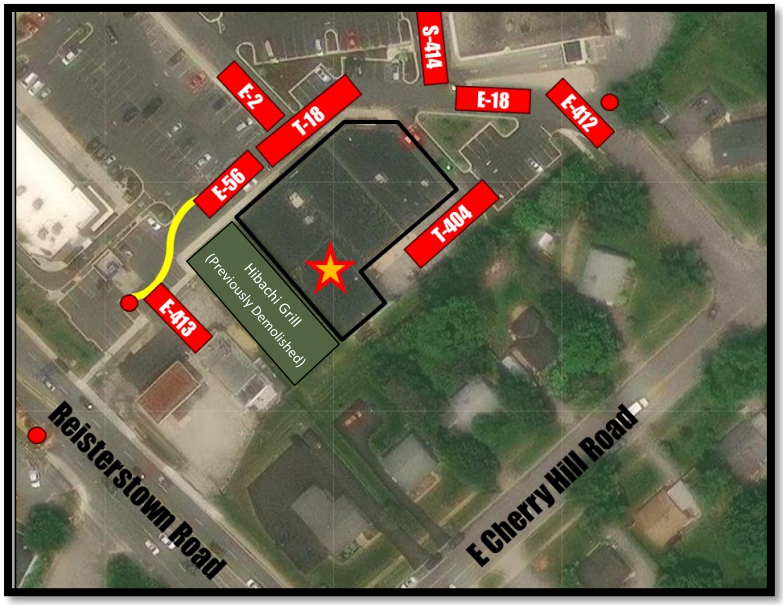
Truck 18 arrived on Side Alpha at 21:49. T18 (OIC) and T18-Search ("Inside Team") entered the structure from Side Alpha with the crew of E56 to search for the seat of the fire [5], while T-18 Driver and T-18 Outside Vent ("Outside Team") ascended T-18's aerial ladder on Side Alpha to perform vertical ventilation on the roof [9]. At 21:50 , T404 arrived and reported to Side Charlie. Charlie Division (E413) instructed T404 not to force any doors open [13], which was acknowledged by the T404 OIC.

At 21:51, the Second Alarm was dispatched on the Main Talkgroup. The alerted units were instructed to respond on the West Talkgroup, consistent with current practice and SOPs.

The Charlie Division Supervisor (E413) advised command (BC2) that the door to Side Charlie had been forced, that he was ready to enter, and would report on conditions. Command (BC2) responded that he did not understand the message being transmitted from

E413 **[12]**. E413 reiterated the same message, and command (BC2) acknowledged that the door had been opened on Side Charlie at 21:52 .

T18 advised command (BC2) at 21:52 that he had made it to the Alpha-Delta corner. A short time later, at 21:53, the Charlie Division Supervisor (E413) stated, "Emergency **[17]**." He continued to transmit that the door was open, fire was burning inside the structure on Side Charlie, that he needed a hose line, and stated, "You may want to hold up on sending crews in [through] Side Alpha." Command (BC2) acknowledged that a hose line was needed by E413 **[1, 9]**. A 500' 1¾" hose line was stretched to Side Charlie from E56 by E18-Nozzle and E18-Back Up. At 21:53, the Charlie Division Supervisor (E413) specifically requested a 2½" hose line **[1]**. Engine 2 was tasked with this objective by command (BC2), and the order was acknowledged. E2 redeployed E56's 2½" hose line from the entrance of the business on Side Alpha to Side Charlie. The hose line was determined to be short and E2 worked to add additional hose lengths to complete the stretch.



Apparatus positioning on the fireground. The star is the approximate location of the point of origin.

At 21:57 , the Charlie Division Supervisor (E413) transmitted the following message: "Tried to make a push in the Charlie-Delta, we are burning up. We had to back out, we had a heavy amount of smoke pumping out of Side Charlie right now." The message was repeated, in form, by command (BC2) at 21:58, who inquired if it would be beneficial to open up the roof. E413 replied, "Yeah; it looks like the fire is above us." Command (BC2) ordered T18 (directed towards the outside team) to open the roof expeditiously **[1, 5, 9]**. At 22:00, command (BC2) announced that Fire Marshal 2 (FM-2) was assuming the safety officer role **[2]**.

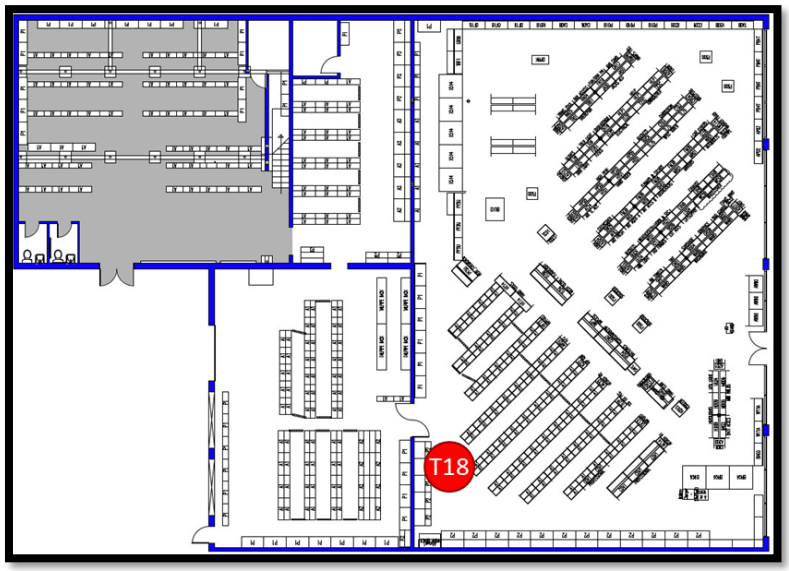
The MAYDAY sequence began at 21:53 **[1, 11, 22, 23, 24, 25]**. TIC footage showed that this was the time when T18 initially became disoriented. He attempted to determine his location until 22:00 when he keyed his portable radio in the following sequence:

- 22:00:50 — *"Command from Truck 18."* <No Direct Acknowledgement>
- 22:00:59 — *"Command from Truck 18, URGENT."* <No Direct Acknowledgement>

- 22:01:14 — Other companies make other radio transmissions on the fireground, including an update regarding conditions on Side Charlie.
- 22:01:52 — *"Command from Truck 18, URGENT."* <No Direct Acknowledgement> Command (BC2) communicated with E18, acknowledging Side Charlie report.
- 22:02:01 — *"Truck 18 to Dispatch."*
- 22:02:07 — "Truck 18?" <Acknowledged by TG-22 dispatcher>
- 22:02:09 — *"Advise command *inaudible* I need some help here."*
- 22:02:16 — "Can you repeat, T18?" <Acknowledged by TG-22 dispatcher>
- 22:02:19 — *"MAYDAY, MAYDAY, MAYDAY."* **[1, 4, 11, 13, 15, 17, 22, 23, 24, 25]**
- 22:02:24 — "Dispatch it's a MAYDAY, hold all air." <MAYDAY acknowledged by command>

In a post-incident interview, the T18 OIC advised that he was equipped with a ceiling hook and received the thermal imaging camera from T18-Search prior to entering the structure. He began hooking ceilings in an attempt to locate the fire **[5]**. During this activity, something knocked him down. Thinking that he was in the middle of the floor, he began to follow shelves within the building in an attempt to regain his bearings.

At 22:02, command (BC2) acknowledged T18's MAYDAY transmission **[21]**. He advised the TG-22 dispatcher to hold the channel **[22]** so that information could be learned for RIT deployment. The dispatcher relayed the message and BC2 subsequently requested a Third Alarm at 22:02. At 22:04, the Third Alarm was dispatched on the Main Talkgroup, with instructions to respond on the West Talkgroup, consistent with current practice and SOPs.



The location of the lieutenant on T18 in the building when the MAYDAY was declared. He remained in this general location when the captain from E19 made contact with him.

At 22:03, T18 advised that he was in a store room, had a ceiling fall on him, and could not

find his way out of the structure. Command (BC2) responded that he did not understand the message on TG-22 **[12]**; the E19 OIC (RIT Group Supervisor), relayed information that was transmitted by T18, but added that T18 was on the second floor. T18 clarified that he was on the first floor, having entered the structure from Side Alpha.

On this incident, E19 was assigned the task of RIT. Of the two firefighters assigned to E19 on the night of the fire, one was detailed from another station and the other was working callback. The RIT firefighters retrieved the stokes basket from T18. On previous versions of apparatus, the RIT equipment was stored in the stokes basket itself. However, on the newer Pierce apparatus, the RIT equipment is stored in a compartment and not in the basket itself. The RIT firefighters were initially unaware of this fact **[13]**. As the MAYDAY was transmitted, both RIT firefighters observed the E19 OIC entering by himself through the Side Alpha entrance as they were donning SCBA and gathering entry tools **[4]**. The RIT bag and rope were eventually gathered, but not taken into the structure by the RIT firefighters.

In a post-incident interview, with an E19 RIT firefighter, it was learned that the RIT rope was present at the Side Alpha entrance. It was not deployed by the E19 RIT firefighters as they were entering the structure on a hose line with two other personnel after the RIT captain entered the structure in order to locate the T18 OIC. The E19 OIC stated that he did not consider using the RIT rope because he believed that was not how firefighters practice RIT operations and this was a scenario for which they had not trained. In retrospect, he expressed that he should have taken the RIT rope as he believes having it would have allowed for quicker extrication of the T18 OIC **[1]**.

The E19 OIC also indicated that he did not have a TIC **[1]**, but in retrospect believes that this would have also assisted in becoming reoriented inside the building and provided a clearer path to exiting the structure. The E19 OIC also advised in a post-incident interview that he entered the structure after calling twice for the balance of the RIT; however, they did not materialize. He believes this may have been due to the fact that there was congestion with non-RIT personnel at the Side Alpha entrance and confusion as to who was assigned to RIT due to the shield numbers from detailed members **[5]**.

This fact also contributed to the safety officer's decision to withhold personnel from the building in an effort to maintain accountability. Knowing that E19 had been assigned the function of RIT, additional personnel were withheld from the structure based upon their helmet shield identifiers. In addition, personnel were withheld from the structure after the MAYDAY was declared which led to interior functions, such as continued fire suppression during the MAYDAY, to go unstaffed.

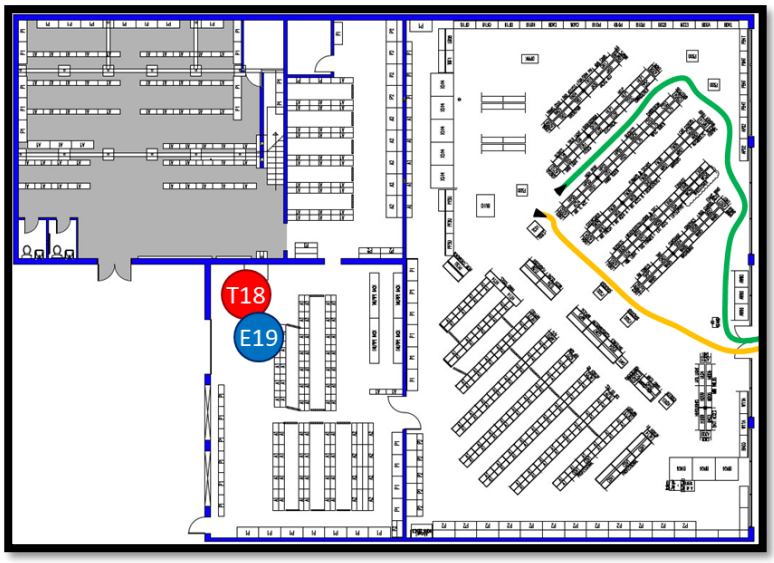
The E19 OIC stated that he saw two members from T18 donning SCBA and he believed they were following him **[3, 4]**. The E19 OIC stated that he had been in the store

several times prior to this event and had a good idea of the location that T18 was describing **[24]**. He stated that he proceeded directly into the middle of the store, passing through a break in the cash register counter and into the stock area, towards Side Charlie.

The E19 OIC advised that he no longer saw members of T18 once he made it to the stock area. He communicated on TG-22 to have the T18 OIC sound his PASS Device **[23]**. The T18 OIC did so, and the E19 OIC located him at 22:05, and notified command of this development via the radio. He communicated the message, "I have the member from T18 **[17]**."

This began a series of misinterpretations as to whether the members had safely evacuated the structure, which started to interfere with communications made by and directed towards the RIT operation. Command (BC2) acknowledged this message through the TG-22 dispatcher, confirming that the MAYDAY member was located and being brought out of the structure. The E19 OIC advised, "Yeah, we're coming out now."

The E19 OIC described the T18 OIC as calm **[24]** when he arrived at his side, and began to develop a plan to exit the structure with him. However, he became disoriented as well, as falling debris disoriented him and his perceived path of exiting the structure **[1]**. The E19 OIC stated that he could hear members on the roof utilizing saws for vertical ventilation, but was unable to visualize any hose line or apparatus. At 22:07, the E19 OIC asked command to sound apparatus air horns to assist him in locating the front of the structure. This initial request was not acknowledged. The OIC of Tower 323 quickly approached E56 Driver and advised that the E19 OIC had requested the air horns to be sounded. The E56 Driver relayed this message to Safety-1 (Departmental Safety Officer), who concurrently heard the second request from the E19 OIC, and directed the air horn from E56 to be engaged. However, this was during the same time frame that Deputy Chief 3 ordered an evacuation; several other companies on the fireground also started engaging their air horns, defeating the initial purpose.



The location of Truck 18's lieutenant and Engine 19's captain when Engine 18-Driver makes contact with them. The yellow and green lines represent attack lines which had been stretched into the building.

In a post-incident interview, the E19 OIC revealed that neither he, nor the T18 OIC, heard the air horns sounding. The investigation determined that the air horns on the

apparatus on Side Alpha were sounding during this time with the operation being executed by Safety-1. The E19 OIC advised that T18 OIC's SCBA low air vibra-alert was starting to slow, so buddy breathing was initiated. It is important to note that a second MAYDAY was not declared upon the E19 OIC identifying that he, and the T18 OIC, had once again become disoriented in the structure **[11]**.

At 22:07, Deputy Chief (DC3) announced his arrival at the incident scene. In a post-incident interview, it was learned that DC3 arrived and exited his vehicle prior to calling on-scene. He walked to an on-scene chief officer vehicle and attempted to locate BC2 and was directed to the front of the building. He operated on his handheld portable radio during this time and offered that he may have missed key radio transmissions while in transit. He did hear the following transmissions, which led him to believe that the RIT operation had concluded:

- E19: "I have the member from T18."
- BC2: "They got the member from T18 and they're coming back out Alpha side now."

It was further confirmed during interviews with DC3 and BC2 that, although there may have been a brief conversation between the two, a proper and meaningful face-to-face pass-on of information between the two officers during the transfer of incident command was not performed **[6]**. There was subsequently no announcement on the tactical talkgroup of the reassignment of BC2. As DC3 returned to a chief officer vehicle on foot at 22:07, he used the handheld portable radio to announce his arrival at the incident scene. He advised that he was taking command of the incident and requested the TG-22 Dispatcher to sound an alert and announce that crews were to evacuate the structure.

A photograph taken after the MAYDAY had been resolved.

Upon hearing the order to evacuate, crews operating inside the structure began to comply. The firefighters who were staffing the two interior handlines left the building as instructed, as did the two firefighters from E19 who had been assigned as the balance of the RIT crew. Crews operating on the exterior of Side Charlie

continued to flow water into the structure from a safe distance; however, fire suppression activities became ineffective.

At 22:10, BC2 identified himself as the Alpha Division Supervisor on the radio **[11, 13]**. He continued to manage the MAYDAY operation and announced that two members from T18 were entering the structure in order to locate the E19 OIC and T18 OIC **[1, 3, 4, 5]**. There was no announcement on the fireground talkgroup of BC2 being assigned the Alpha Division Supervisor position. It was later learned that one of the members was actually working callback on E18 as the driver, and he was regularly assigned to T18 on the same shift as the T18 OIC. The other firefighter was working callback on E3 as a firefighter, and he was also regularly assigned to T18 on the same shift as the MAYDAY lieutenant. Both of these members have the number "18" on their helmet shields, leading the Alpha Division Supervisor (BC2) to believe that they were assigned to that apparatus during this event **[5]**. The officers from E3 and E18, the apparatus to which the called-back members were working that night, were not aware that they had deployed into the structure.

In a post-incident interview, the E18 Driver stated that he entered via Side Alpha, observed smoke being entrained back into the structure via the entrance doors, and followed the hose line that was stretched closer to the center of the building. He then proceeded behind the row of cash registers, into the stock area and further into the building towards Side Charlie, where he encountered the E19 OIC and T18 OIC at 22:13 and notified command via radio.

The three members then met with the E3 backup firefighter and began to exit the building, performing a left-on-left search pattern to Side Delta, down the Side Delta wall towards Side Alpha, and finally across side Alpha to the exit doors near Side Bravo. At 22:18, the E19 OIC, T18 OIC, E18-Driver, and E3-Backup exited the building. Command (DC3) was informed of this development by the Alpha Division Supervisor (BC2) and a PAR of all units operating on the fireground began. All members were accounted for at that time and the attack strategy was revised to strictly defensive operations.

The T18 OIC was immediately received and treated by M56 **[25]**, and subsequently transported to Carroll Hospital in Westminster Maryland as a precaution. He did not relate any significant complaints or injuries. He remained conscious and alert while being treated. His PPE, SCBA, and TIC were secured to be inspected by the Baltimore County Fire Department's Bureau of Health and Safety.

Fireground operations continued well into the evening and into the morning and late afternoon hours of July 19, 2023. The on-scene fire origin and cause investigation concluded at 20:00 on July 29, 2023.

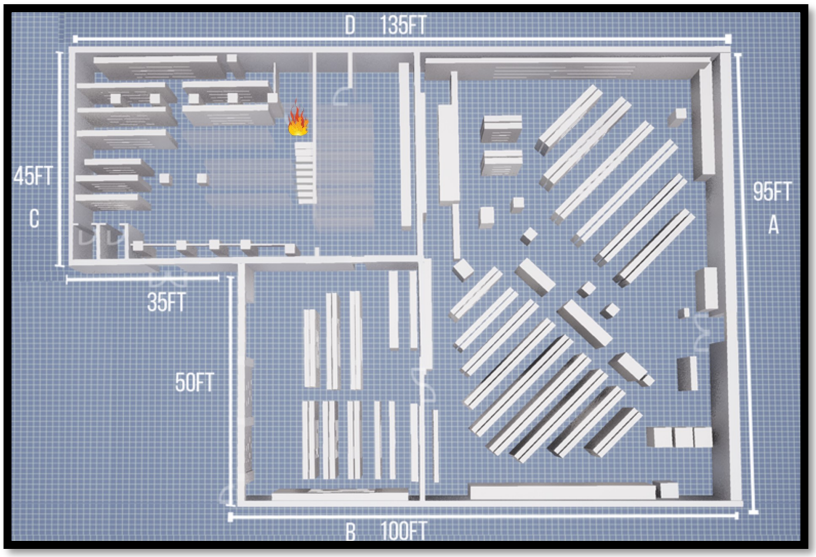
Post-Incident Scene Walk-Throughs

On August 14, 2023, the E19 OIC (RIT Group Supervisor) participated in a "walk-through" of the incident scene at Advance Auto Parts with investigators. The following information was learned during the visit: The E19 OIC proceeded approximately 77 feet from the Side Alpha main entrance into the structure, behind the row of cash registers and into the stock area. He heard the PASS device emitting from T18 OIC, and encountered him in the stock area to the rear of the cash registers. The E19 OIC also heard T18 OIC's low SCBA air alarm vibrating, so a buddy breathing operation commenced. The E19 OIC described smoke conditions as thick, with zero visibility, and added that the smoke was not hot. At some point, E19 OIC became disoriented in the structure due to falling debris. The TIC video obtained by investigators shows both the E19 OIC and T18 OIC passing an aisle of hanging mufflers on their right that were stored in the Delta Side of the Bravo/Charlie corner of the building. They continued on a path that brought them approximately 75' from their initial contact spot, farther towards the rear of the building, although the E19 OIC believed at first that he was proceeding towards the Side Alpha entry point. At this point, he advised command (BC2) that an additional crew would be needed inside the building to help them evacuate, as they had lost their way out of the building.

On August 19, 2023, T18 OIC, E18-Driver, E3-Backup participated in a "walk-through" of the incident scene with investigators. During the visit, investigators were able to confirm the route taken by T18 OIC and where he was when he transmitted the MAYDAY. He was shown where he was first encountered by E19 OIC (RIT Group Supervisor), and the path the two took, prior to notifying command (BC2) that they would need assistance evacuating the structure. The T18 OIC was shown where his door chocks were located as well as the forcible entry tool that he used, but lost contact with. These items were found several feet away from the Side Charlie garage door but, due to smoke conditions, firefighters would have been unable to discern this as a viable means of egress. This door was not opened during the initial phase of the incident.

FIRE PROGRESSION SEQUENCE AND FLOWPATH OVERVIEW

Based on the origin and cause investigation, the fire on this incident was intentionally set in a storage area near the stairs that accessed the hallway to the office area on the second floor. This location is depicted by the fire icon in the schematic to the right.



An isometric view of the Advance Auto Parts building. The front of the building (Side Alpha) is on the right side of the drawing. The fire's point of origin is depicted by the fire icon near the Charlie-Delta corner.

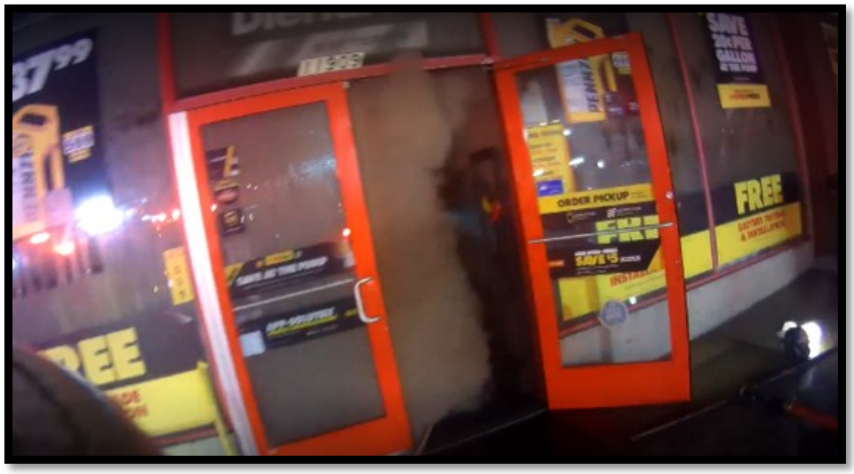
Surveillance footage obtained shows the fire being ignited at approximately 21:14. The suspect exited the structure at that time, shutting and locking the doors. The fire, which initially consumed ordinary combustibles, grew thereafter. It ignited material in the storage area, including liquid hydrocarbons such as fuel additives, solvents, oil, and other materials used in auto repair and maintenance.

The fire was initially ventilation limited, as the supply of oxygen in the storage area space was consumed. Smoke from the combustion process emitted through the primary opening between the storage area and the cash registers and store front. It also likely moved through the heating, ventilation and air conditioning (HVAC) duct work throughout the store. It took several minutes for the smoke, which was not present under significant pressure, to fill the wide-open store front area. It was not until 21:37 that the smoke was noticed by a passer-by and the first of three 911 calls was initiated.

Helmet camera footage obtained shortly after the arrival of Engine 56 observing a large volume of low-velocity smoke.

When E56 arrived on the scene at 21:40, they observed significant smoke, both through the store front windows and diffusely emitting out of spaces around the front doors. When the door was forced at 21:47, a large volume of smoke escaped from the structure. The smoke was reported to move

with minimal velocity and remained low to the ground. This "cold smoke" was indicative of a fire in the decay stage and/or a fire remote from the opening.



Fresh air entraining back into the structure from Side Alpha as E413 forced the door on Side Charlie.

The smoke remained relatively unchanged until E413 opened the door to the second-floor office space on Side Charlie around 21:52. At that time, the smoke was noted to diminish on Side Alpha and fresh air appeared to entrain into the structure.

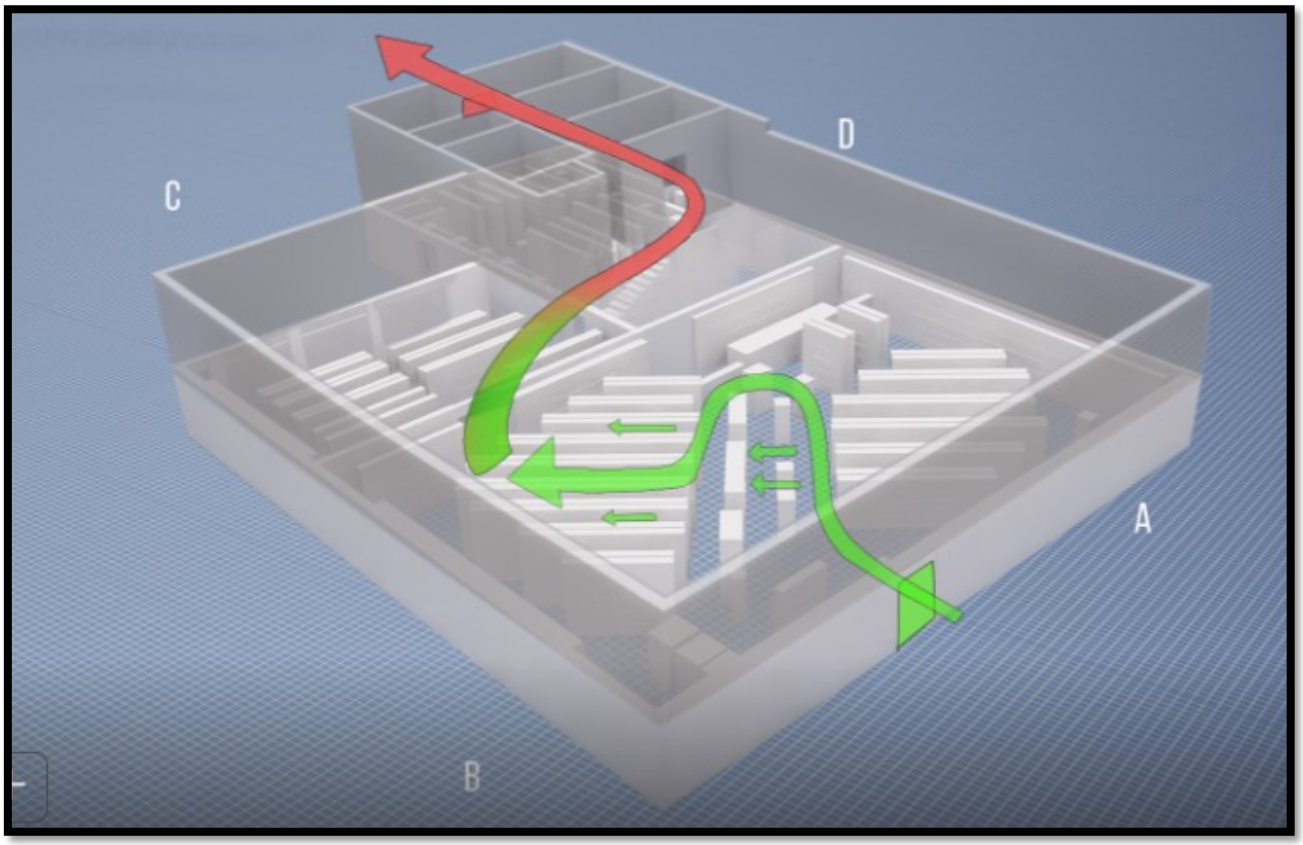
As E413 began to make entry into the structure from the rear, they reported significant heat. At that time, the smoke conditions on Side Alpha changed significantly. Helmet camera footage showed the smoke entraining in with great velocity through the front doors. Fresh air and oxygen pushed into this low-intake and fed the fire in the storage area. The fire grew exponentially with great ferocity and the superheated byproducts of combustion quickly traversed the stairs to the second-floor office space and exited via the rear office door, which served as a high-exhaust opening. The crew from E413 encountered high heat because of this flow path phenomenon and would have been in great peril were they not able to exit.

The high exhaust opening created on Division 2, Side Charlie. This photo was taken after the MAYDAY had resolved and the front windows were removed. *Photo courtesy of Rusty Brown.*

The T18 OIC and E19 OIC reported low heat conditions in the area where they became disoriented. While fire grew with great intensity in the storage area, they were located on the opposite side of a block wall. This shielded them from the intense heat of the rapidly growing fire.

The fire in the stairwell and second-floor space weakened the roof above it, which was noted to be open-web steel bar joist. Collapse eventually occurred as the structural

components weakened and the fire grew. It was noted that, when water was applied via a 2½ inch attack line into the second-floor door, the smoke began to exit from Side Alpha again. The hose stream from the 2½ inch line partially blocked the exhaust vent of the flow path. As a result, the pressure increased in the fire structure and forced a portion of the exhaust flow (smoke) out of the open door on Side Alpha. Closing the door on Side Alpha would have shut down the air intake. This would have resulted in reduced air supply to the fire and caused the development of a bi-directional flow at the open Side Charlie door. The reduced heat release rate of the fire may have enabled an effective fire attack from the Side Charlie doorway.



An isometric view of the structure with the flowpath overlaid. Fresh air (green) entered the structure through the open doors on the first floor of Side Alpha. The flow progressed up the second floor steps and exhaust (red) exited the structure on Side Charlie. This diagram indicates the "Low Intake High Exhaust" phenomenon.

CHRONOLOGY OF SIGNIFICANT EVENTS

21:34	Initial call received by Baltimore County 911 Center.
21:36	ADO advises BC2 of the pending call on the ADO Talkgroup.
21:37	ADO advises BC2 of multiple calls received and that dispatch needs to dispatch EMS calls first.E56 calls available on the Main Dispatch Talkgroup.
21:40	E56 advises they are on Talkgroup 22 and gives a BIR indicating they have a one-story commercial building, approximately 200' by 400' with significant smoke. They advise they are going to force the door and stretch a line.
21:41	E2, T18, and T13 call available on the Main Dispatch Talkgroup.
21:43	E56 advises the OIC on E56 will have command and will retain safety until additional units arrive.
21:44	Fire Box 56-4 is dispatched for Reisterstown Road and East Cherry Hill Road.
21:44	Command requests a second alarm and advises a Bravo exposure is present, but does not appear to be involved yet.
21:46	BC2 advises he did not hear a BIR and asks for an update. Command confirms his initial BIR and advises he has a line in place, and a 2-½. He advises, "We just want some more personnel here before we go too deep into this thing." BC2 makes a request to add the Hazardous Materials assignment to the call.

21:47	Command advises they are attempting to find the seat of the fire.
21:48	BC2 arrives and assumes command and designates the OIC of E56 as side Charlie. Dispatch advises they are going to assign E19 as the RIT engine. E56 advises that E412 will be going to side Charlie.
21:49	BC2 acknowledges that E412 will be Side Charlie and E56 will be assigned Safety. Truck 18 arrives on scene. E56 asks BC2 if he is on scene. BC2 responds that he is on scene, assuming command, and designating E56 as Safety. BC2 asks dispatch to confirm the request for the second alarm and Hazmat assignment.
21:51	E413 (previously designated E412) advises T404 not to force any doors. T404 acknowledges.
21:52	E413 advises he has the Charlie door forced and is getting ready to open the door. Command advises that he was unable to copy. E413 repeats his message and asks command if he is ready to open it. Command acknowledges: "Door's forced on Charlie, copy." T18 OIC advises he has made his way to the Alpha-Delta corner and the heat is more intense in that direction. E413 transmits: "Command from 413, Emergency!"
21:53	E413 advises: "We've got the door open; I have fire back here. I need a line. You might want to hold up on sending crews through Alpha." E413 asks for a 2 -½ line to side Charlie. Based upon recorded TIC footage, this is the time at
21:57	E413 advises that they tried to make a push into the Charlie-Delta corner and advised they were "burning up". They advise that there is heavy smoke pumping out of Charlie.
21:58	E413 advises that they believe fire is above them. BC2 directs T18 to open the roof as quickly as they can.

22:00	BC2 assigns FM2 as safety. T18 OIC attempts to raise command unsuccessfully twice, indicating an urgent message the second time.
22:01	E18 attempts to raise command. Command responds with "command." E18 indicates he is on Side Charlie flowing water from the stairwell landing but they are unable to make entry. T18 OIC attempts to raise command a third time with an urgent message. Command acknowledges E18's message.
22:02	T18 OIC attempts to raise dispatch. Dispatch acknowledges. T18 OIC transmits a broken message but indicates that he needs some help. Dispatch asks T18 to repeat. T18 OIC responds with, "MAYDAY, MAYDAY, MAYDAY." BC2 immediately acknowledges the MAYDAY and asks dispatch to hold all air. Dispatch sounds the Alert 3 tone and issues the MAYDAY on the TAC channel. BC2 confirms T18 had a MAYDAY and asks him to go ahead with his report and requests a Third Alarm. T18 OIC states that he is stuck in the store room, had a ceiling fall on him, is disoriented and cannot find his way out.
22:03	Dispatch asks command if he copies T18's message. Command indicates he did not. Dispatch asks T18 to repeat. E19 OIC relays the message, "RIT to Dispatch. They said they are up in a store room, and the ceiling fell on them, second level." Dispatch repeats the message. BC2 acknowledges the message and indicates that RIT is deploying. T18 OIC responds: "Negative. Negative, negative. I'm on the first floor, I came in the Alpha Side. I had a ceiling *inaudible* fall on me. Now I cannot find my way back out.
22:04	Command reassigns the engine from Reese, a mutual aid company, as the new RIT Team. Safety (FM2) advises that E56 has exited from side Alpha and the E19 OIC and a crew from E3, T18, and E19 going inside.
22:05	E19 OIC asks T18 OIC to sound his PASS alarm. E19 OIC locates the T18 OIC.
22:06	Dispatch asks, "E19 got the member from T18 correct?" Command (BC2) responds, "Yeah, they got the member from T18 and they're coming back out Alpha side now." Safety (FM2) recommends an evacuation once the members exit.

22:07	DC3 arrives and assumes command. He asks dispatch to sound the alert for all crews to evacuate the building. Dispatch sounds the alert tone and directs crews to evacuate the building. DC3 advises that a PAR is going to be conducted. E19 OIC asks for air horns to be sounded to attempt to locate the front of the building. SAFE1 acknowledges E19's request.
22:08	SAFE1 asks RIT if they were able to hear the air horns. BC2 advises all units to hold all air horns. Dispatch asks E19 if they were able to copy the air horns.
22:09	E19 OIC advises they were not able to hear the air horns from their location inside the building. FM2 asks E19 if they are coming out Side Alpha. E19 OIC states, "That's the idea, but I haven't found it yet." DC3 asks T18 if they are PAR. E19 OIC advises command that someone will need to go in to locate them.
22:10	BC2 advises that 2 members of T18 are entering the structure to assist the rescue effort. E19 OIC advises they will be hooking up to buddy breathing. DC3 asks T18 once again if they are PAR. BC2 advises DC3 that they are not PAR, they are still trying to find their way out.
22:11	DC3 asks BC2 if the RIT team has been deployed. BC2 advises: "RIT team's deployed that was E19. They've located the downed member; he's going to be running out of air. We got T18 going in to assist them to find their way out, and as soon as they find them, I got E3 ready to go in to assist." SAFE1 asks E19 OIC to advise on their air status. E19 advises they have just hooked up to buddy breathing and they are a little less than half. Dispatch directs all units on the fireground not involved in the rescue operation to switch to Talkgroup 23.
22:13	E18-P4 advises that they have located T18 OIC and E19 OIC.
22:14	E18-P4 asks command to start PPV.

22:17	Members make their way to Side Alpha and are visible through the storefront windows. All members exit the structure.
22:22	A PAR is completed, accounting for all units on the fireground.
22:30	The attack strategy is revised to defensive operations only.
01:05	The incident is held with E56, E2, and T18 to monitor hot spots throughout the early morning.

FINDINGS, DISCUSSION, AND RECOMMENDATIONS

The After Action Review Team synthesized all available information into several findings and recommendations. These findings were categorized into four areas based upon their level of urgency. It should be noted that the numbers associated with each finding are for reference only; they do not indicate priority order within each category. The categories are defined as:

IMMEDIATE:	This finding is a high-risk life safety concern that must be addressed immediately.
URGENT:	This finding should be addressed as soon as possible.
CONCERNING:	This finding is in need of resolve; however, it is not critical from a life safety perspective.
STRENGTH:	This finding is consistent with departmental policies and/or represents a best practice.

Each finding has also been correlated to one, or more, of the "NIOSH 5": the top five causal factors of firefighter deaths and injuries on the fireground as identified by the National Institute for Occupational Safety and Health. These five focus areas repeatedly appear in line-of-duty death reports as the main contributing factors and can be referenced by the acronym *CAIRS:*

- Communications—Inadequate communications.
- Accountability—Lack of accountability.
- Incident Command—Lack of incident command.
- Risk assessment—Improper risk assessment.
- Standard Operating Procedures—Lack of SOPs or failure to follow established SOPs.

Finally, each finding has also been correlated to previous studies or investigations where recommendations for corrective action were made. These documents are (in chronological order):

Internal

Falkenhan

Internal Line of Duty Death Report—Firefighter Mark Falkenhan (March 16, 2012)

NIOSH

Fogle

NIOSH Line of Duty Death Report—Firefighter Robert Fogle (May 30, 2014)

NIOSH

Falkenhan

NIOSH Line of Duty Death Report—Firefighter Mark Falkenhan (July 3, 2012)

Efficiency

Study

Baltimore County Efficiency Review, Public Works, LLC (January 27, 2022)

Internal

Kirchner

Internal Line of Duty Death Report—Firefighter Gene Kirchner (April 21, 2014)

Internal

Stricker St

Baltimore City Board of Inquiry Report—205 S. Stricker Street (December 2, 2022)

NIOSH

Kirchner

NIOSH Line of Duty Death Report—Firefighter Gene Kirchner (April 24, 2014)

FACETS

Study

Third Party Evaluation, FACETS Consulting (December 16, 2022)

FINDING #1—Use of Effective Fireground Tactics

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☐ Accountability
- ☐ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☑ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☑ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: A thermal imaging camera (TIC) uses infrared technology to identify heat signatures. Changes in heat signatures can provide firefighters with intelligence regarding both victims and means of egress in low-visibility situations. This tool is a fundamental piece of equipment for risk assessment and safe operations. Firefighters should be properly trained on and proficient in its use.

A still picture taken from T18's TIC shows clear demarcation of the thermal layers. In a wide, open space area of the store front, this is an indicator of heat that should be used to formulate a risk assessment.

On this incident, the MAYDAY lieutenant had a TIC attached to his person throughout the incident. The TIC recorded both audio and video during the event. It was noted during the review that the TIC was not used to locate exits or to orient the MAYDAY lieutenant. It was further noted that it has been several years since the BCoFD has conducted formalized training on this tool. There are simple techniques, such as physically wiping the lens of the equipment, which will greatly enhance its usefulness and practicality. Since this incident, the department has implemented a training program provided by an outside vendor that focuses on the tactical use of a TIC.

When selecting the appropriate attack line, the focus should be on the needed or required fire flow for extinguishment. Tactical Operations Manual #8 recommends initiating fire attack with a 2½" blitz line in any mercantile/apartment/large fire load structures. In 2021, the department began to replace its fleet with new Pierce fire engines. With the goal of consistency, the fire chief directed the engine committee to outline the lengths, nozzles, and hose load configuration for all new engines. The specifications of the new engines included 500 feet of 2½" attack line, although feedback from field operations suggested that not all companies desired or needed to carry 500 feet. General Order #22-09 specified that 300 feet of 2½" attack line

Tactical

08

be carried on all Pierce engines. On this incident, several members interviewed stated that they believed that a 2½" attack line was needed in the rear but was not initially deployed because the length was insufficient.

G.O.

22-09

The limited air supply afforded by our SCBA is no match for the challenges we face when operating within larger structures. Limited or zero visibility conditions elevate the critical importance of maintaining our orientation in these occupancies. Navigating carefully within the IDLH parallels our responsibility to manage our air consumption and ensure we have an adequate supply to make a safe exit. It is therefore imperative that every member check their SCBA daily to ensure proper functionality, a full air cylinder, and proper battery level. Furthermore, deployment of RIT should ensure additional air sources, such as the RIT bag. Currently, only truck companies and select engine companies are equipped with RIT equipment, including the large area search rope. On this incident, when buddy breathing took place the MAYDAY lieutenant and RIT captain came dangerously close to running out of air.

Finally, fireground tactics employed in the "routine" dwelling fire are not always appropriate in commercial building fires. Disoriented entry into an occupancy such as Advance Auto Parts is a high-risk tactic. Reorientation tactics, such as "finding a wall" is time consuming and especially challenging given aisleways, store displays, materials storage, and more. Tools, such as the thermal imaging camera and the large area search rope greatly improve the firefighter's ability to remain oriented and quickly navigate to points of egress as needed. No large area search rope was deployed by either the MAYDAY lieutenant or the RIT.

Since this incident, the department has implemented a formal training program provided by an outside vendor that focusses on the tactical use of the camera. The BCoFD has also included the large area search rope in mandatory department-wide RIT training. In addition, efforts have been made with the County Administration to secure funding for additional RIT bags to ensure the resource is both available for training and deployment on the fireground.

Recommendation: The After Action Review Team recommends that the Department provide training on the use of an "apartment lay" or "leader line" to achieve the desired reach. The engine specifications committee, under the guidance of the Logistics Bureau, should re-evaluate the configuration of hose loads on engine companies. The Department should consider equipping each suppression company with a full complement of RIT equipment, to include a large area search rope. There should be a strong focus in training on large area orientation, search techniques, and the nuances associate with fire incidents involving commercial/large occupancies. Finally, the Department should continue to provide ongoing training for all members on the effective use of thermal imaging cameras.

FINDING #2—Need for Additional Command Staff and On-Duty Safety Officers

IMMEDIATE

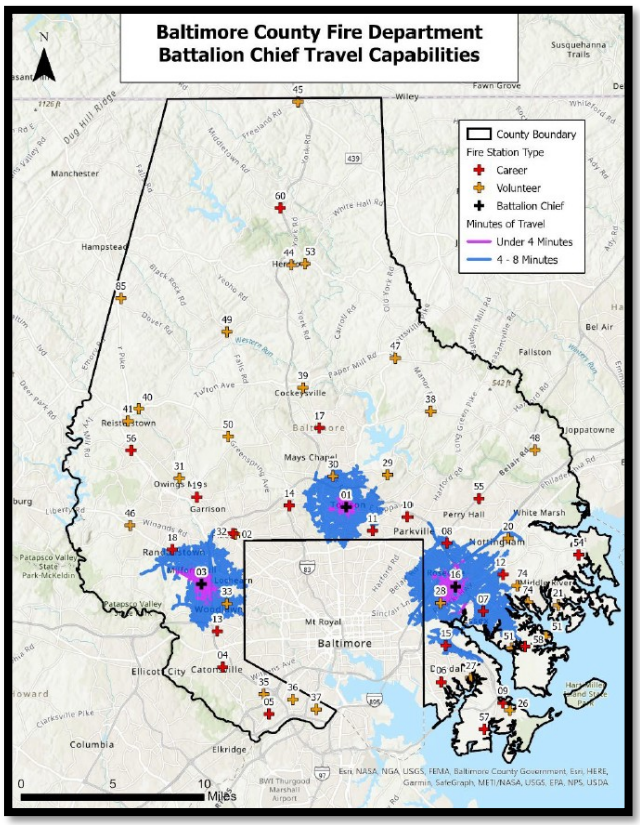
NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☑ Falkenhan NIOSH
- ☐ Kirchner Internal
- ☐ Kirchner NIOSH
- ☐ Fogle NIOSH
- ☑ Stricker Street BOI
- ☑ Efficiency Review
- ☑ FACETS Study

Discussion: The Baltimore County Fire Department serves a diverse geographic area that spans over 680 square miles with a population estimated at over 900,000. The County is divided into three battalions, which includes a Central, West and East area. The West and East Battalions are each managed by a battalion chief who oversees, in most cases, eight career fire stations and eight volunteer stations. The Central Battalion is managed by a deputy chief (DC). The DC oversees the eight career and eight volunteer stations in that district and is also responsible for the management of the entire County through the two battalion chiefs on his/her shift. Best practices related to span of control– the number of individuals one individual can effectively supervise– is 3 to 7. Thus, the span of control has exceeded the recommended threshold before a call has even been dispatched.



The dark shaded areas on this map represent a 10-minute response timeframe from the stations that house the two battalion chiefs and one deputy chief. The vast majority of the county is well outside of this response range.

In addition, the chief officers maintain ancillary responsibilities such as Special Operations, Communication, EMS, etc. that minimize their ability to interact on a daily basis with the stations under their command. They are also tasked with staffing their shift and upcoming shifts. This is a continuous duty that further minimizes interaction with those in the field. This model has been in place for almost two decades and requires the off-duty chief officers to respond from home to bolster on-duty assets and perform the ancillary duties expected of them while off duty.

This has an adverse impact on the mental health of the chief officers. In addition, the model of only three chief officers on duty has led to excessive response times and the mandatory redeployment of company officers into the long-term IC roles. In addition, and perhaps most importantly, this model diminishes the opportunity for chief officers to cultivate the officers and members under their command. They are unable to build expectations and train with their personnel. This is compounded by the fact that, statistically speaking, over half of the career officers in the BCoFD have less than two years in that promoted position.

The safety officer (SO) is a critical position within the incident management structure of any incident. FEMA states the following: "The safety officer monitors incident operations and advises the incident commander (IC) or unified command on all matters relating to operational safety, including the health and safety of incident personnel." In the BCoFD, there are no on-duty safety officers. The role is filled either with a member who is on call during off duty hours or by redeploying an officer on the fire ground to that position. In the case where the on-call member is used, they often respond from their residence with significant geographic challenges and response times. Further, this is a tremendous personal burden as this model requires them to respond while off duty. In the case where an officer is redeployed, this impacts crew integrity and accountability. In the cases where a younger and inexperienced crew is entering an IDLH, the latter model removes their officer from the crew to fill the SO position. The final option is for the IC to maintain the SO role in addition to the IC role. This leads to task saturation. In all cases, the model by which a SO is appointed on working incidents in the BCoFD is not optimal and is contrary to the very basic concept of safety.

On this incident, the acting battalion chief (BC), who assumed the IC function, directed the OIC from the first arriving engine to assume the SO role. The OIC elected to enter the structure with his crew and the SO role went unaddressed. It was later assigned to an on-call member who responded from his residence while off duty.

Several small events compounded and led to a significant near-miss. These smaller events can be attributed to a culture that condones freelancing and asynchronous operations on the fireground. Adequate command-level supervision– either through a chief officer or safety officer– is often delayed in arriving on the scene. The lack of command-level staff contributes to an everyday normalization of task saturation among the existing command staff, which thereby cripples their ability to cultivate fireground discipline in the members under their command.

Recommendation: The After Action Review Team recommends that the department take immediate steps to add chief officer-level positions and on-duty safety officers, in line with previous studies which have been conducted and recommendations suggested.

FINDING #3—Freelancing

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☐ Falkenhan NIOSH
☑ Kirchner Internal	☑ Kirchner NIOSH
☐ Fogle NIOSH	☐ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: Freelancing is one of the most dangerous activities that can happen on the fireground. An activity becomes freelancing when companies or personnel self-deploy without announcing their intentions or fail to follow predetermined Standard Operating Procedures. When a crew or an individual works outside of the scope or, in conflict with the incident action plan, there is a lack of accountability and coordination that can lead to a catastrophe.

On this incident, freelancing started prior to the call before it was even dispatched. The "pre-alert" prompted units not assigned—or due to be assigned—to deploy to the fire. Once on the scene, there were activities that occurred despite direction to the contrary. Crews entered the structure on Side Alpha, for example, despite direction from the IC to withhold entry. In addition, this entry occurred despite intelligence from Side Charlie that the fire conditions may have been too significant for entry into the structure.

Crews who did enter the structure deployed in a manner with no clear direction from incident command or supported by SOPs. Additionally, a General Order issued on November 16, 2020, requires a PAIR Check prior to entry to assist the incident commander in maintaining accountability and ensuring the SCBA and radio ensemble function as designed (see Finding 4 for more information). On this incident, not a single PAIR check was transmitted. Following this directive would have provided an opportunity for the incident commander to maintain accountability and prompted consideration of fireground tactics.

When the MAYDAY was declared, there was rapid partial deployment of the RIT and the member successfully and quickly located the lieutenant in distress. When these two members requested assistance, additional members were deployed into the structure to locate them. While the outcome was positive and these members were able to help the firefighters in distress navigate out of the structure, hindsight dictates that the additional deployment of resources should have been more coordinated.

To combat freelancing, it is important that all firefighters on the fireground are disciplined in their actions. This implies that the incident commander should have direct knowledge of—or be reasonably able to anticipate based upon Standard Operating Procedures—the location and mission of all companies operating on the incident. If a crew completes an assigned task and self-assigns themselves to another task, this is a form of freelancing. Over time, a culture has emerged that permits the act of freelancing without any speedbumps or roadblocks to slow or stop them.

Officers at all levels– from the most junior lieutenant to the fire chief— have a responsibility to identify and eradicate behaviors which directly or indirectly contribute to freelancing. These same officers must hold themselves and their personnel accountable to this charge as it is directly related to firefighter safety.

Recommendation: The After Action Review Team recommends that the Department develop a post-incident Quality Assurance/Quality Improvement tool that ensures the review of events involving an IDLH and to identify instances of freelancing; those instances should be addressed through training.

FINDING #4—Crew Integrity and Accountability

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☑ Falkenhan Internal
- ☑ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☑ Falkenhan NIOSH
- ☑ Kirchner NIOSH
- ☑ Stricker Street BOI
- ☐ FACETS Study

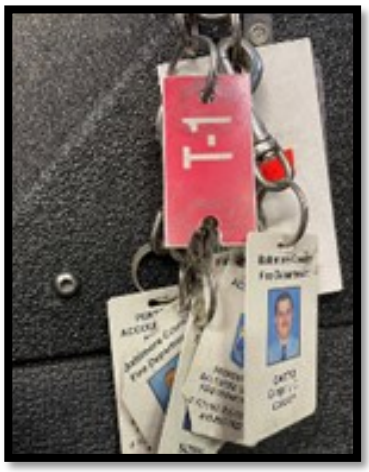
Discussion: Crew integrity is imperative when operating on the fireground. In addition to the incident commander being aware of where crews are operating, it is necessary for Division and Group Supervisors and Unit Leaders to know the whereabouts of their members for optimal safety. Even when it is acceptable to operate somewhat independently, as is the case when a truck crew separates to complete a search for victims, the officer must plan this operation with the crew and ensure integrity of the personnel assigned under their command. Crew integrity and accountability is the responsibility of every member.

Tactical

06

On this incident, several crews operated without crew integrity. This included the truck crew to which the MAYDAY lieutenant was assigned as well as the two subsequent RIT Crews. This lack of accountability and integrity was exacerbated by the fact that the Department does not have on-duty safety officers. As a result, the incident commander is often forced– in compliance with departmental policy– to redeploy the initial OIC to that role. By design, this practice leaves the crew without an officer to guide their operations and adversely impacts crew integrity in a volatile environment.

The Department has adopted Tactical Operations Manual #6, which defines procedures for members to follow related to fireground accountability. This includes the use of Personnel Accountability Tags (PAT) with apparatus and officer collector rings as a tool to ensure crew integrity. That SOP defines Level I Accountability as the most basic level required when operating on fire and rescue incidents. The SOP dictates that during Level I Accountability operations, the PAT Tag Collector Ring remains inside the apparatus unless dictated otherwise by the incident commander. Over time, Level I Accountability has become the de-facto standard for most working fire incidents; however, this provides no situational awareness to the incident commander about the personnel who are actually operating inside an IDLH.



An additional tool that the department has adopted to assist with accountability is the PAIR Check. This is a tool that was implemented when the Department integrated the Bluetooth connection between the MSA G1 SCBA and the Motorola Radio. The integration of this technology greatly enhanced radio communication clarity from within the IDLH. A PAIR Check was introduced as a verbal announcement on the tactical talkgroup which included the unit number, the number of personnel that were entering into the IDLH, and the task with which they were to engage. The format was as follows: *"Engine 2 is making entry with two personnel for search on Side Alpha."*

The purpose of the PAIR Check was to ensure that the radio and SCBA ensemble were properly paired and operational. In addition, this tool ensures that the user was on the correct talkgroup and it served as an accountability component, allowing the incident commander and dispatch to directly acknowledge crews entering the IDLH.

On this incident, no crews announced a PAIR Check. As a result, many personnel on the fireground may have been absent this situational awareness and unaware of which crews had entered the structure and their tactical assignment on the incident. In addition, the radio transmissions from the MAYDAY lieutenant were broken, indicating a high probability of a poor facepiece seal. This may have been identified prior to entry had a PAIR Check been completed. Additionally, it is noted that "PAIR" and "PAR" bear similarity over the radio and the terms could contribute to confusion.

Recommendation: The After Action Review Team recommends that the department consider the immediate implementation of Level II Accountability for any incident within an IDLH Environment. Other forms of accountability systems should be explored for their efficacy. The term "PAIR Check" should be renamed to another term, to promote the accountability component of the tool as well as eliminate potential confusion with a "PAR." Finally, the concept of a pre-entry accountability check should be incorporated into Standard Operating Procedures, as the practice currently only exists in a Safety Bulletin, which is not binding in nature.

FINDING #5—Risk Assessment and Situational Awareness

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☐ Falkenhan NIOSH
☑ Kirchner Internal	☑ Kirchner NIOSH
☐ Fogle NIOSH	☑ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: When a crew deploys into an IDLH, they should have a clear mission that takes an overall risk assessment into consideration. The BCoFD lacks SOPs which are specific to risk assessment and considerations for fires in commercial buildings. The importance of a continuing risk assessment is crucial to safe operations on the fireground.

On this incident, the T18 OIC deployed into the structure to "locate the fire" while simultaneously conducting a search. The risk assessment did not take into consideration the wide-open space and the significant smoke emitting from the structure. The fuel load played a role in the density and volume of smoke as well as the speed of fire development. Additionally, the fact that the business was closed, and by all indications un-occupied, should have played a role in the decision-making process.

There were many cues for the incident commander to revise the incident action plan prior to the MAYDAY occurring; however, they were not acted upon. E413 reported heavy fire conditions on Side Charlie and even recommended holding off on personnel entering the structure through side Alpha, but those crews inside were permitted to continue operating. E413 later reported that fire conditions were untenable, requiring them to back out. Despite this information, crews on the roof were directed to operate on an open-web steel truss roof with heavy fire conditions underneath of them.

S.B.

23-05

In response to some of the issues identified by the After Action Review Team around the topic of risk assessment, the Health and Safety Bureau published Safety Bulletin 23-05 on November 10, 2023. This document was distributed county-wide to all career and volunteer responders. It outlines suggestions for incident commanders to incorporate when conducting an initial or on-going risk assessment.

It is optimal for all personnel on any incident to be situationally aware of the various cues that can shape their decision-making. This awareness is challenging in real-time on an actively evolving incident, but the many previous reports of fire service catastrophes reflect on this concept of situational awareness.

On this incident, there were many cases of diminished awareness of the situation. For example, it was reported during the interviews that crews were not aware of the second story portion of the structure on Side Charlie. This may have exacerbated confusion on the fireground. It was not until a transmission later during the incident from an officer who was self-assigned as Side Charlie that this construction anomaly was verbalized on the radio. As a result of this lack of information, the entire fireground operated with minimized situational awareness of the circumstances.

The After Action Review Team recognizes that operating with complete situational awareness during a bombardment of unknowns, such as the case on this incident, is nearly impossible. However, steps can be taken before and during an incident that helps responders assimilate as much situational awareness as possible.

There are third party computer programs that allow fire and EMS personnel to conduct and capture intelligence of building construction and hazards prior to an incident. These same platforms can be used in real time on the incident for the IC to shape an effective risk assessment that could influence fireground operations.

SOP

400-26

The design of the department's personal protective equipment also contributed to decreased situational awareness. The BCoFD issues NFPA-compliant PPE, including a "metro" style fire helmet. SOP #400-26 also permits members to purchase and wear one of several "traditional" style helmets, as specified. Members that choose to wear the issued helmet are provided stickers correlating with their rank and company number. Those wearing personal helmets are responsible for purchasing their own front piece adorned with their company number. Members on leave are back-filled with personnel detailed in from other companies or working overtime. This often results in a "mixed bag" of members– and helmets– operating together as one company on the fireground. SCBA assigned to apparatus are labeled on the cylinder strap and visible only from the rear. On this incident, one member of the RIT deployed and two members were denied entry by the safety officer who was stationed at the front door. Through interviews it was determined that the safety officer was aware that Engine 19 was designated as the RIT and denied the entry of two members with different company identifiers on their helmets to prevent freelancing.

Recommendation: The After Action Review Team recommends that the Department develop a Standard Operating Procedure that addresses risk assessment on incidents. This SOP should be reinforced through targeted and frequent command competency training for all officers. Additionally, the Team recommends the Department research the availability and dependability of company identifiers on the SCBA shoulder straps.

FINDING #6—Command and Control Function

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☑ Falkenhan NIOSH
☐ Kirchner Internal	☐ Kirchner NIOSH
☐ Fogle NIOSH	☑ Stricker Street BOI
☑ Efficiency Review	☑ FACETS Study

Discussion: Transfer of command is the process by which an officer of higher rank assumes the responsibility, authority, and accountability of an incident. This transfer is a meaningful process and, per Tactical Operations Manual #7, is completed via the face-to-face method (preferred) or via the radio. In extreme cases, when the initial IC is unable to be located or does not answer repeated attempts to be called on the tactical talkgroup, the higher-raking individual may assume the command function in the absence of that transfer. The latter case is the exception as opposed to the rule, and should be avoided when possible. In addition, TAC 7 states: "Upon arrival of a higher-ranking officer, they will be briefed by the on-scene incident commander. The higher-ranking officer will then assume command. This transfer of command is to be announced and a Progress Report given. The new incident commander will reassign the officer being relieved of command responsibilities."

Tactical

07

On this incident, there was no formal transfer of command from the initial incident commander on the first-arriving engine to the acting battalion chief; nor was there a formal transfer of command when the deputy chief arrived. As a result, decisions were made absent valuable intelligence, and the course of the incident was adversely impacted. This process may have been hampered by the lack of a fixed command post from where the incident commander operated.

There is tremendous value in operating from a fixed command post, especially on large scale or complex incidents. The BCoFD has recently transitioned to a model where the responding chief remains in their vehicle while managing the incident. This allows for a more sterile environment for communications and provides a workspace for the incident commander to complete their command sheet, tactical checklists, and monitor the SCBA air monitoring tool. On this incident, it was revealed that crucial communications were missed as the incident commander transitioned to the outside of their vehicle to set up command.

The SCBA air monitoring tool displays the total SCBA cylinder pressure of an end user on a computer screen in the vehicle of command personnel. This tool, which is used

to maintain accountability, serves as an indicator of air management of those within the IDLH. There is no formal requirement to utilize this system in any BCoFD SOPs.

On this incident, a member on scene was delegated the task of monitoring the air management software by the acting BC who assumed the IC role. Another chief officer, who was off duty but elected to respond, arrived on location and activated the same software. As the technology is designed to transmit to the closest workstation, this resulted in data that was being monitored to be moved inadvertently to another computer. This created confusion at the command level.

In addition to these aspects of command and control, it is common for members on the fireground to have unique knowledge of a particular geographic area or structure. This intelligence can be vital to the incident commander as they consider their incident action plan. This information should be readily shared to enhance fireground situational awareness. This, however, does not enable any member on the fireground the authority to provide tactical direction to units. This may result in directions contrary to the incident action plan established by the IC with the potential for a negative impact on the safety of those operating on the incident.

On this incident, it was noted that some members provided tactical directions to units as they arrived. In some cases, these directions were provided absent a complete risk assessment, intelligence of the conditions on the fireground, or knowledge of the incident commander. This practice may have inadvertently placed members at risk.

Recommendation: The After Action Review Team recommends that the Department implement an on-going command competency training program for all command officers (acting battalion chiefs and higher) to reinforce the concepts of transfer of command, in-car command, and fireground command and control. The air management software, and any other similar platforms or tools used by the IC should be referenced in tactical SOPs. The command competency training should incorporate use of the air management software and any other tools utilized by incident commanders to reinforce proficiency.

FINDING #7—Crew Resource Management

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☑ Falkenhan NIOSH
☐ Kirchner Internal	☐ Kirchner NIOSH
☐ Fogle NIOSH	☐ Stricker Street BOI
☑ Efficiency Review	☑ FACETS Study

Discussion: The concept of Crew Resource Management (CRM) has proven to be very successful in both the military and aviation industry. This principle is centered around the belief that every member has a responsibility to maintain situational awareness and optimal human performance to enhance safety as a team. It is important for the fire service to adopt similar strategies in a similar quest.

During the interviews conducted by the After Action Review Team, it was noted on several occasions that many individuals, including chief officers and safety officers, were situationally aware of the cascade of events that led to the declaration of the MAYDAY. Further, these individuals revealed in the interviews that they would have liked to have had an outlet by which they could communicate that awareness to an on-scene incident commander. It is not culturally acceptable in the BCoFD, however, to offer recommendations or input remotely while others are on scene.

As an example on this incident, when the deputy chief arrived and called for the evacuation and PAR, it was evident to many that this was done absent the intelligence that the RIT Company was disoriented and lost within the structure as well. As a result, he continued to operate with the mindset that all of the members were safe and removed from the structure. The interviewees noted that they wanted to key up their radio and inform the IC that he was missing that critical piece of information. In hindsight, members withheld information acquired through their situational awareness that would have enhanced performance and safety on this incident.

Tactical

07

Tactical Operations Manual #7 states the following: "If a higher-ranking officer wants to affect a change in the management of an incident, they must first be on the scene of the incident, and then utilize the transfer of command procedure. Anyone can affect a change in incident management in extreme situations relating to safety by notifying the incident commander and initiating corrective action." Existing SOPs, therefore, permit a Remote Safety Inject when corrective action is needed.

In addition to these components of CRM, the primary responsibility of the incident commander is to ensure the safety of the men and women

under their command. One tool to effectively meet this responsibility is to deploy units in divisions (geographic location) and groups (functional duty). This will allow the IC to track the location of personnel, navigate a challenging span of control, and ensure an effective delegation of the many tasks that must be completed on an incident scene.

On this incident, a unit was designated as Side Charlie. The OIC on that piece, however, entered the structure with his crew. This left the IC void of that position responsible to monitor the overall conditions in that geographic area. Later during the incident, an officer who was not assigned that position did assume the role of Side Charlie. No other divisions or groups were assigned or delegated. As a result, there was a general lack of command and control of the rapidly evolving incident.

Tactical

08

Finally, Tactical Operations Manual #8 designates the fifth arriving engine as the command engine. This concept was introduced in 2019 to assist the incident commander with the overall function of command. This, in turn, allows the IC to focus on overall operations. The SOP states that dispatch will designate the fifth engine as the command engine. The SOP allows the command engine to be reassigned, as needed, to handle other "critical functions."

On this incident, dispatch did not identify the command engine and the fifth arriving engine engaged in a tactical assignment upon arrival. The absence of a command engine resulted in critical tasks, such as accountability and documentation, to fall upon the shoulders of the incident commander pending the arrival of the on-call safety officer and off-duty chief officers responding from home.

Recommendation: The After Action Review Team recommends that the Department implement a policy that provides the rules of engagement for injecting a safety message (Remote Safety Inject) to the incident commander in the spirit of CRM. Dispatch should announce the command engine assignment on the tactical talkgroup, as is currently accomplished with the RIT engine, to prompt awareness for the incident commander. Unless absolutely critical to fireground operations, the incident commander should not reassign the command engine to other duties. These concepts should be reinforced through regular command competency training.

FINDING #8—Physical Fitness

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☐ Accountability
- ☐ Incident Command
- ☑ Risk Assessment
- ☐ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☑ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: The Centers for Disease Control (CDC), in conjunction with the US Fire Administration and NFPA cite that the leading causes of recent firefighter fatalities were overexertion, stress, and medical. This included a remarkable number of sudden cardiac deaths. The emergency services occupation is physically demanding and challenging. Those demands are increased in a rapidly evolving incident such as a MAYDAY. As a result of these demands, the fire service has turned to recommended guidelines for direction, such as NFPA 1582, The Standard on Comprehensive Occupational Medical Program for Fire Departments. In addition, the recruitment and selection process for this physically demanding occupation has been enhanced in most departments via the incorporation of standardized Physical Agility Tests (PAT).

Personnel #19 directs members, both career and volunteer, to obtain a yearly physical with their primary care provider (PCP). The member's PCP will sign a form attesting to the fact that a physical has been completed. The SOP also directs career personnel to perform a self-reported yearly physical fitness assessment. Finally, the SOP directs career members on the annual completion of a Physical Readiness Assessment, which consists of job-related movements and tasks. The members are timed and can work with a Peer Fitness Trainer if they wish to improve their performance. These expectations are non-punitive, at the request of the labor organization and anecdotally have improved the physical health of the members. There is still a tremendous amount of work that must be done to consistently apply this SOP to all members, both career and volunteer. Further, incumbents perform a physical agility test with job related expectations but the assessment does not meet the benchmarks of the PAT Candidate Testing.

On this incident, a member reported during the interviews that they elected to withdraw from fireground operations because they were not comfortable with their fitness level. They offered that they saw themselves as more of a liability in this critical event than a benefit. As a result, there was an increased risk of a medical event which, per the CDC, is a tremendous challenge for those in our field. Further, this left the RIT short the resources

that may have been needed should the extrication of the MAYDAY lieutenant been more challenging.

Since this incident, the Department has partnered with a human performance company to embed a specialist within the agency. This full-time resource has a background in strength and conditioning and has experience in both the collegiate and military atmospheres. Since joining the Department, the human performance specialist has:

- Implemented a 30-60-90 day plan;
- Analyzed retrospective injury data for trends;
- Conducted a snapshot physical readiness assessment;
- Engaged in meetings with stations and members to provide individualized consultations on health, wellness, and readiness topics.
- Conducted a series of Human Performance Workshops.
- Initiated a strength and conditioning program for recruits, to include progress assessments at regular intervals.

The Department fully expects that this partnership will continue to grow. Noticeable impact has already been shown as a result of this initiative.

Recommendation: The After Action Review Team recommends that the Department funds a partnership with a human performance or wellness program. The Department should explore the feasibility and impact of implementing NFPA 1582 physicals for all members as well as adopting the standardized Physical Ability Test process for new hires. The Department should also work with BCVFA Member Companies on a consistent approach to member fitness.

FINDING #9—Knowledge of Fire Behavior

IMMEDIATE

NIOSH Top 5 Impact Areas:

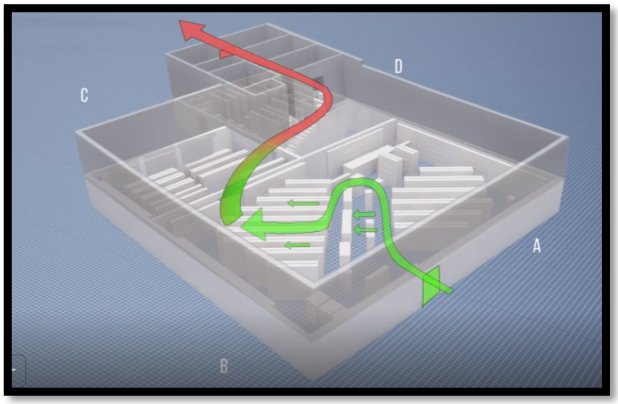
- ☐ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☑ Falkenhan NIOSH
☑ Kirchner Internal	☑ Kirchner NIOSH
☐ Fogle NIOSH	☐ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: A tremendous amount of research has taken place related to the movement of fresh air and the subsequent heat and fire conditions in a structure when openings are manipulated. This phenomenon, known as flow path, can significantly change conditions in an IDLH. A critical finding from a study conducted by the UL Fire Safety Research Institute (FSRI) states: "Providing ventilation (via horizontal or vertical methods) without suppression resulted in an increase in the heat release rate of the fire and a corresponding rise in temperature." This noteworthy observation illustrates the importance of ensuring a coordinated fire attack when ventilation occurs. Further, there is a risk associated with vertical ventilation on lightweight roof construction when it takes place over extreme heat.

On this incident, a clear flow path was noted when the rear door on the second-floor office area was opened. This was supported by helmet camera footage and reports from Side Charlie. The smoke, which initially pushed out of the front door opening, began to entrain into the structure. A fire dynamics assessment suggests that the front doors became a low, fresh air intake and the rear door provided a high exhaust for the increased combustion that was being fed by the influx of fresh air. Crews reported intense heat on the second floor during this time. It was noted that this drastic change was not reported to the incident commander in real time. This flow path could have been controlled by closing the Side Alpha doors to reduce the heat release rate of the fire. This would have changed the flow path so that both the intake and the exhaust flow would have been through the open doorway on the rear.



At the same time, crews operated in earnest to cut holes in the roof above the heat to vent the superheated gases from the building while MAYDAY operations ensued. There was, however, no coordination of fire attack. As a result of the absence of effective water to the seat of the fire at this point, research indicates that completion of the vertical vent

opening may have worsened the fire conditions below. Furthermore, crews operated above the heat on an open web bar joist roof which was at risk of imminent collapse due to the conditions below. During the interviews, it was also noted that these crews did not hear the order to retreat from the incident commander because of the noise from saws and other ambient sources. Fortunately, the main fire area was confined by block walls which limited the spread of the fire and the location of the MAYDAY operation was remote from the exhaust portion of the flow path. These factors provided the safe operational time to affect the resolution of the MAYDAY.

This incident demonstrates the importance of recognizing changes in conditions related to the fire flow path and the value of informing the incident commander through the CRM model of those changes. A culture change that includes a disciplined fireground that integrates the understanding of fire dynamics and flow path into the risk assessment component is indicated.

Recommendation: The After Action Review Team recommends that the Department utilize the training provided by UL's Fire Safety Research Institute to provide additional education to all members the science of fire behavior, fire control, and the potential for roof and floor collapse. Additionally, it is crucial that the Division Supervisor on the roof be able to monitor the radio for important messages from command while simultaneously observing crews operating on the roof. The Department should also update their tactical SOP on fire ground ventilation.

FINDING #10—Delay of Initial Dispatch

IMMEDIATE

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☐ Accountability
- ☐ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☑ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: The Baltimore County 911 Center operates with civilian employees who function as 911 call takers and both Police and Fire Dispatchers. In terms of County Government, they fall under the Office of Budget and Finance. The BCoFD has one uniformed member assigned to the 911 Center and they serve in the role of Administrative Duty Officer (ADO).

When a person calls 911, the Call Taker operates under various professional protocols and conducts an appropriate assessment of need. They perform their duties consistent with the Standard of Care for these First Receivers. In Baltimore County, however, they execute an internal protocol called "Early Dispatch." In this process, once a 911 call is preliminarily determined to be of a medical nature, it is immediately distributed to the queue for deployment of Fire Department units. Further, the SOPs at the 911 center state the following:

D. Response Priorities – The dispatcher (FD01/FD06) will dispatch incidents in order according to the following parameters below:

1. All incidents will be dispatched based on the concept of life over property unless otherwise directed by FDX.
2. Incidents will be dispatched in order according to the determinant priority level (A, B, C, D and E) assigned to the call unless otherwise directed by FDX.
3. FDX working in concert with ADO may make adjustments to the order in which calls are dispatched based on his/her professional judgment and information obtained about an incident.

As a result of this internal protocol, all medical calls regardless of priority and determinants are dispatched over any property related incidents, such as building fires without reported rescues.

Further, the ADO who monitors the calls in queue, can view the emergency responses pending and is able to communicate with an on-duty chief officer via an administrative talk group when calls of significance are awaiting dispatch. This is also monitored by fire stations throughout the County. This advance notification is referred to as a "pre-alert." There is no policy regarding the procedures for this "pre-alert" and the use of the tool is not consistent between shifts and personnel.

On this incident, the first 911 call was received at 21:34:39. There were seven EMS calls in the queue that, based on the Dispatch policy of life over property, were dispatched on the main talk group. The ADO recognized the building fire in the dispatch queue and executed a "pre-alert" on the administrative talk group at 21:36:22. This prompted units in the area to either go available in the district or, in the case of the first due unit, respond emergency to the location of the incident. E56 arrived at 21:40:43 and the call was not dispatched over the Main talk group until 21:44:05.

As a result of existing protocols at the 911 center, there was a clear delay in dispatching the incident at the Advance Auto Parts. The "pre-alert", which was a stopgap designed to get units on the road faster, resulted in units arriving out of sequence and long before the formal dispatch of resources. This was identified amongst those interviewed as a major point of confusion and increased risk. The human factor in the SOP, a conversation between the civilian supervisor (FDX) and the ADO, did not take place.

In the time since this incident occurred, Baltimore County has transitioned to a new CAD software solution. This new system does not use the Early Dispatch protocol. Rather, it uses determinants and priorities consistent with best practices. A test of that system using dispatch criteria identical to those present on the night of this incident identified that this issue should be resolved moving forward.

Recommendation: The After Action Review Team recommends that the Department cease the practice of issuing a "Pre-Alert" on the administrative channel as it lends to confusion and fosters a culture of freelancing. In December of 2023, the Department distributed a Safety Bulletin that officially halted the use of the "Pre-Alert."

S.B.

23-07

FINDING #11—Actions Taken During MAYDAY	**URGENT**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☐ Standard Operating Procedures

Prior Reports or Studies:

- ☑ Falkenhan Internal
- ☑ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☑ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: When a MAYDAY is declared on the fireground, a significant number of resources and effort is placed on locating and extracting the member(s) in distress. It is important, however, to continue fire attack as this often maintains tenable conditions within the IDLH from which a firefighter in distress may benefit. On this incident there was a tremendous amount of confusion surrounding the order to evacuate the building. At the time the order was issued, the MAYDAY was still ongoing and crews were inside the structure staffing handlines to provide protection to interior crews.

Upon hearing the order to evacuate, those members removed themselves from the building, leaving the protective handlines unstaffed. In an attempt to comply with the evacuation order, the safety officer stationed at the door on Side Alpha withheld crews from entry and there was no coordination of fire suppression. In terms of the Incident Management System, a senior officer should be assigned to manage this operation and coordinate the resources to maintain tenable conditions inside.

The member assigned this task would be identified, in most cases, as the fire branch director and would have various divisions and groups under their command. In the organizational chain of command, in most cases, they would report to the operations section chief, if assigned, or the incident commander. They should be instructed to perform those tasks with minimal radio transmissions using face-to-face communication as the primary medium for exchange of information.

In addition, it is imperative for a member in distress to promptly activate the cascade of procedures in a MAYDAY situation. Any delay in calling the MAYDAY can lead to worsening conditions or decreased air supply within the SCBA needed for extraction from the structure. This should be built into the muscle memory of every member. On this incident, the MAYDAY lieutenant struggled and was disoriented for approximately ten minutes before he called the MAYDAY.

Recommendation: The After Action Review Team recommends that the Department conduct competency training to reinforce the importance of calling a MAYDAY early and the proper way to do so. This incident should be used as a tool for educating all officers on the importance of continued fire attack during a MAYDAY.

FINDING #12—Proper Face Piece Seal

URGENT

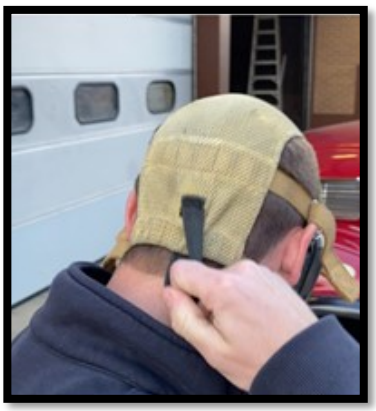
NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☐ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☑ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: The BCoFD uses the MSA G1 SCBA ensemble that is paired via Bluetooth with a Motorola portable radio for communication purposes. The means by which a member communicates while actively using the system is via microphone ports located in the mask mounted regulator (MMR). This system is designed to recognize nuances in pressures within the face piece to activate these microphones. Whether a member is communicating via the Bluetooth connection or via the voice-emitter located on the shoulder strap of the SCBA, proper functionality depends on the pressures within the face piece. If the SCBA face piece is not donned correctly, air will escape and the variations of pressure and air flow will result in choppy transmissions.



The BCoFD conducted extensive research on this situation and identified the benefit of donning the face piece through a specific sequence that reconciled a possible communication issue and had the added benefit of ensuring that the face piece was secure. This minimized the risk of the face piece becoming dislodged in the event a member fell or was struck by a falling object. The BCoFD sequence is as follows: Tighten the chin straps, then the temple straps followed by a tug on the black single strap that rests on the lower portion of the webbing. It is imperative to then further tighten the chin straps and temple straps again. This extra tug provides the security to keep the mask from being dislodged and will guarantee that transmissions within the IDLH are clear.

On this incident, the MAYDAY lieutenant stated during the interviews that his face piece seal was checked prior to entry. It is not clear if he donned the ensemble consistent with these recommendations. Nonetheless, the initial transmission from the MAYDAY lieutenant when he was in distress was choppy and difficult to understand. This is an indication of a poor face piece seal.

Recommendation: The After Action Review Team recommends that the Department reinforce the proper donning of the facepiece in training that takes place in the future. The skill must also be reinforced when members conduct their yearly required fit-test.

FINDING #13—Rapid Intervention Team	**URGENT**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☐ Falkenhan NIOSH
☑ Kirchner Internal	☑ Kirchner NIOSH
☐ Fogle NIOSH	☑ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: If a MAYDAY occurs, the IC is often overwhelmed with all aspects of the MAYDAY while continuing to execute the critical functions on the fireground that must be completed to provide maximal safety for all members. Often in these situations, the IC becomes engaged with the task and tactical functions of the MAYDAY and they become task saturated. To minimize this, the appointment of a RIT Branch Director is indicated. The BCFD Report from the Stricker Street Fire states the following: "RIT operations are intense and require command, control, discipline, and skill to conduct properly. A strong command presence is necessary to marshal the efforts of those attempting the rescue. Chief officers are a critical part of the RIT/MAYDAY incident and must take control of the operation." This reinforces the value of appointing a qualified member to the RIT Branch Director position.

On this incident, the deputy chief arrived and assumed command during the MAYDAY. The acting BC, who was the IC prior, maintained an informal role in support of the operation. He was not directed to assume the role of the person in charge of the MAYDAY. This led to confusion about the status of the MAYDAY. Additionally, there was no key person responsible to coordinate the active RIT deployment and build reinforced resources for additional deployments, if needed.

In addition, RIT bags are specialized packs that contain an SCBA cylinder with multiple configurations of hook-ups by which a firefighter can transfer air if a member is operating with a low supply. This is critical, as removal of an SCBA face piece in the IDLH could result in instantaneous lethal exposure from the byproducts of combustion or super-heated gases. The BCoFD carries these RIT bags on trucks and squads and on select fire engines throughout the County. Not all pieces of suppression apparatus carry the bag.

On previous models of ladder trucks, the bag was carried in the stokes ensemble, which made for rapid deployment of the entire ensemble needed for possible firefighter rescue. In the case of the newer model of ladder trucks, the RIT bag will not fit in the compartment with the stokes basket. Therefore, it is placed in an alternate compartment.

Tactical

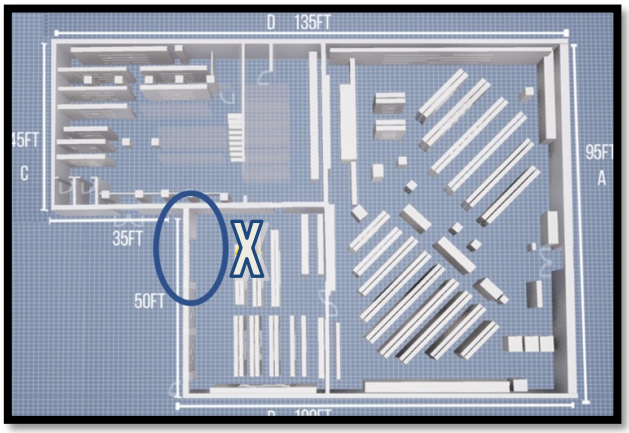
18

On this incident, E19 served as the initial RIT company. They do not carry a RIT bag and, as such, deployed equipment from T18 for RIT when they arrived. The RIT Team only grabbed the stokes basket and were not aware that the RIT bag was not stored in that piece of equipment. As a result, there was no RIT bag deployed with the RIT, nor was one taken when the captain assigned to the RIT Team entered the structure when the MAYDAY was declared.

The BCoFD deploys RIT bags via ladder trucks, squads and select fire engines throughout the County. Over the years, bags have been replaced and different styles and models have been placed in the field. As a result, there are numerous types of RIT bags with differing equipment layouts.

While not a factor on this incident because the RIT bag was not deployed, this lack of consistency can create a training deficit that could create an issue in a rapidly evolving MAYDAY situation.

Tactical Operations Manual #18, Appendix A (RIT SIZE-UP CHECKLIST) directs the RIT to perform various functions that include obtaining a progress report from the IC, setting up tool areas, and assessing the optimal means of exit for ALL crews operating on the fire ground. This includes doors and windows and, in an "active RIT" situation, the team can deploy ladders to ensure there are egress points above ground level, if needed.



On this incident, a large roll-up door was located on Side Charlie. It is visible in the oval on the diagram of the structure. The "X" represents the location of the MAYDAY lieutenant and the RIT member who became disoriented within the IDLH. There was also an exit door within close proximity to the roll-up. It is noteworthy how close they were operating to those doors, which were never accessed or unlocked during the incident.

Recommendation: The After Action Review Team recommends that the Department define the roles and responsibilities of the RIT Branch Director in its SOPs. An inventory should be conducted to identify the various styles of RIT bags, and their locations, throughout the County. The practicality of "RIT" SCBA cylinder covers to readily identify the units as such should be investigated. RIT competency training should be conducted regularly to ensure crews are familiar with the location of RIT equipment and proficient in its use. The Department should also pursue the purchase of RIT Bags for all suppression companies. Finally, training and reinforcement of softening egress points during "Active RIT" operations should be addressed.

FINDING #14—Outdated Standard Operating Procedures

URGENT

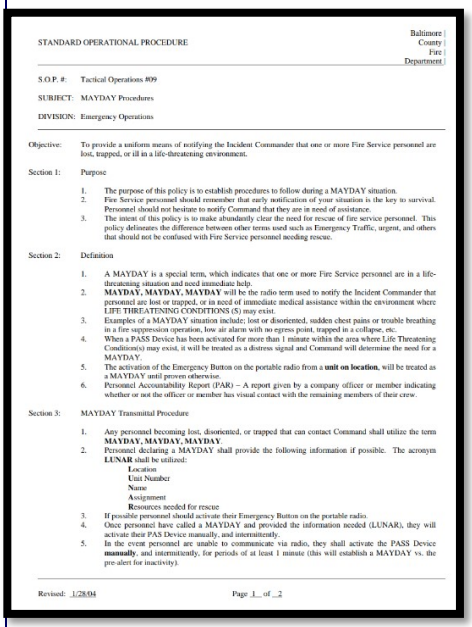
NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Falkenhan NIOSH
- ☐ Kirchner Internal
- ☐ Kirchner NIOSH
- ☐ Fogle NIOSH
- ☐ Stricker Street BOI
- ☐ Efficiency Review
- ☐ FACETS Study

Discussion: Standard Operating Procedures (SOPs) are guidelines that personnel use for both operational and administrative tasks. They are an important tool to ensure compliance with safe operations. They must be continually updated based on review and feedback to guarantee efficacy. Further, it is imperative that an organization have clear expectations (SOPs) and thorough training on those expectations.



STANDARD OPERATIONAL PROCEDURE

Baltimore County Fire Department

S.O.P. #: Tactical Operations #09

SUBJECT: MAYDAY Procedures

DIVISION: Emergency Operations

Objective: To provide a uniform means of notifying the Incident Commander that one or more Fire Service personnel are lost, trapped, or ill in a life-threatening environment.

Section 1: Purpose

1. The purpose of this policy is to establish procedures to follow during a MAYDAY situation.
2. Fire Service personnel should remember that early notification of your situation is the key to survival. Personnel should not hesitate to notify Command that they are in need of assistance.
3. The intent of this policy is to make abundantly clear the need for rescue of fire service personnel. This policy delineates the difference between other terms used such as Emergency Traffic, urgent, and others that should not be confused with Fire Service personnel needing rescue.

Section 2: Definition

1. A MAYDAY is a special term, which indicates that one or more Fire Service personnel are in a life-threatening situation and need immediate help.
2. **MAYDAY, MAYDAY, MAYDAY** will be the radio term used to notify the Incident Commander that personnel are lost or trapped, or in need of immediate medical assistance within the environment where LIFE THREATENING CONDITIONS (S) may exist.
3. Examples of a MAYDAY situation include; lost or disoriented, sudden chest pains or trouble breathing in a fire suppression operation, low air alarm with no egress point, trapped in a collapse, etc.
4. When a PASS Device has been activated for more than 1 minute within the area where Life Threatening Condition(s) may exist, it will be treated as a distress signal and Command will determine the need for a MAYDAY.
5. The activation of the Emergency Button on the portable radio from a **unit on location**, will be treated as a MAYDAY until proven otherwise.
6. Personnel Accountability Report (PAR) – A report given by a company officer or member indicating whether or not the officer or member has visual contact with the remaining members of their crew.

Section 3: MAYDAY Transmittal Procedure

1. Any personnel becoming lost, disoriented, or trapped that can contact Command shall utilize the term **MAYDAY, MAYDAY, MAYDAY.**
2. Personnel declaring a MAYDAY shall provide the following information if possible. The acronym **LUNAR** shall be utilized:
   - **L**ocation
   - **U**nit Number
   - **N**ame
   - **A**ssignment
   - **R**esources needed for rescue
3. If possible personnel should activate their Emergency Button on the portable radio.
4. Once personnel have called a MAYDAY and provided the information needed (LUNAR), they will activate their PAS Device manually, and intermittently.
5. In the event personnel are unable to communicate via radio, they shall activate the PASS Device **manually**, and intermittently, for periods of at least 1 minute (this will establish a MAYDAY vs. the pre-alert for inactivity).

Revised: 1/28/04 Page 1 of 2

The BCoFD has numerous SOPs that are divided into various chapters based on the topic of each SOP. Because these SOPs are housed on a protected server that requires credentials to access, the volunteer members of the organization are unable to view them. This creates an issue with key players understanding the expectations for critical operations.

Fireground operations, including the tactical assignments of units and personnel, are generally guided by Tactical Operations Manual #8. While the priorities are the same, the department recognizes the tactical nuances associated with fires that occur in unique structures and occupancies. As a result, Tactical Operations Manual #10 and Tactical Operations Manual #34 were developed to provide guidance and considerations when operating on incidents within those structures/occupancies.

Tactical 08

Tactical 10

Tactical 34

During the review of this incident, it was recognized that the department does not provide any specific guidance for fires that occur in commercial buildings. There are a number of variables that must be considered in the determination of which tactics to be employed to control and suppress a fire within a

commercial building including (but not limited to): size, construction, layout, fuel/contents, and exposure problems.

The committee reviewed the specific SOPs that were relevant to the operations at the Advance Auto Parts and noted that most are significantly outdated. Further, the crews that operated on the incident did not comply with many of the SOPs and this resulted in issues with communication, accountability, effective incident management principles, and completion of a thorough risk assessment. The SOP Compliance Section of this report provides greater detail about SOPs which were pertinent to this event.

Recommendation: The After Action Review Team recommends that the Department work with the volunteer organizations to create a platform where the SOPs are readily accessible. In addition, the committee recommends that the BCoFD conduct an immediate assessment of their SOPs to identify, in priority order, those that need to be updated or created. There should be a procedure in place for revisions that is clear and revision cycles should be mandatory. A procedure should be established to ensure all members have read and understand new or revised SOPs when they have been introduced. Finally, all SOPs should utilize and direct standard terminology consistent with the NFPA's Glossary of Terms.

FINDING #15—MAYDAY Communication Practices

URGENT

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☐ Falkenhan NIOSH
☑ Kirchner Internal	☐ Kirchner NIOSH
☐ Fogle NIOSH	☑ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: On August 11, 2021, a captain responded to a fire in a large residential structure in Maryland. While extinguishing the fire, he fell through the first floor into the basement. The captain initially survived and transmitted numerous times on his portable radio. A review of radio rejection logs from the captain's portable radio indicated his transmissions were rejected 17 times by other transmissions on the fire ground. He did not activate his Emergency Alert Button (EAB) on his portable radio prior to calling his MAYDAY, nor was he prompted to do so by command or dispatch. As a result of this Line of Duty Death, NIOSH released a Safety Memo that stressed the importance of training on the EAB functionality of the radio.

FCDFRS

LODD

The mobile and portable radios utilized by the fire department are equipped with an EAB, often referred to as the "orange button". The orange-colored button is recessed to prevent accidental activation and is located on the top of the portable radio near the antennae. The function of the EAB is dependent upon the settings decided upon by the fire department and the Electronic Services Section of the Office of Information Technology (OIT). When depressed, the radio emits a sequence of tones, the display illuminates in red, and reads "EMERGENCY". At the fire dispatch center, an audible alert tone is emitted in the dispatcher's headset and a priority notification is displayed on the computer screen containing the radio identifier of the unit that activated the EAB.

The EAB, when activated, will provide the user with ruthless preemption. This feature allows the user of the radio in emergency to "bump" another active user off the channel to provide the immediate ability to transmit a priority message. The ruthless preemption feature will continue until the EAB is reset by the user. This ensures that the user, in this case the MAYDAY lieutenant, not only has priority for transmission of a message but will ruthlessly deny the ability of others to use the resources should the MAYDAY lieutenant have activated the push to talk button. This is fundamental in the conveyance of important transmissions.

On this incident, the MAYDAY lieutenant experienced three subscriber rejects when he was in distress. He did not activate his EAB nor was he directed to do so by

command or dispatch. As a result, his attempt to convey critical communications was hindered.

During the review of this incident, the committee reached out to Electronic Services, the branch of County Government responsible for radios and mobile technology, to verify the functionality of the EAB. It was determined that the activation of the EAB does, in fact, result in ruthless preemption of the user. Anecdotal conversations with crews about this functionality revealed that many were not familiar with what the button does in an emergent situation. Additionally, it was discovered that the EAB can be activated remotely from the fire dispatch console and may prove extremely useful in scenarios where the firefighter is trapped or otherwise unable to active the EAB on their own.

Regarding other communications aspects, Tactical Operations Manual #9 states the following: "If deemed necessary, the incident commander may utilize additional tactical talk groups for non MAYDAY/RIT operations." Emphasis is placed on the language "if deemed necessary". The decision to move any operations rests solely on the IC and the needs identified through their continued risk assessment. In most cases, the IC will elect to keep all units on the same talk group as the MAYDAY to ensure all members maintain situational awareness in the immediate area of the MAYDAY. That is, nonetheless, at their discretion. Dispatch, however, operates on the direction via SOPs that, in the event of a MAYDAY, all units not engaged in the MAYDAY be switched to an alternate talk group. These two SOPs are in conflict and may lead to confusion.

On this incident, when the MAYDAY was declared, a responding battalion chief on a separate talk group recognized the high volume of radio transmissions and requested that units, once arrived, stage on a separate talk group versus the fire ground tactical talk group. Dispatch complied and also established non-MAYDAY operations on that separate talk group. This separate talk group was monitored by a dispatcher at the 911 Center. Regardless, the use of that separate talk group was not requested by the IC and he was not aware of the move of resources to that channel. As a result, there was confusion regarding communications on the fire ground and there was a gap that could have resulted in a message of critical importance being missed.

Recommendation: The After Action Review Team recommends that the Department conduct training on the concept of ruthless preemption and incorporate it into regular RIT training. In concert with Electronic Services and Fire Dispatch, the Department should conduct additional research and testing of the remote activation of the EAB. The priority of maintaining MAYDAY operations on one talkgroup must be reinforced through SOPs and training.

FINDING #16—Dispatch Communication Practices	**CONCERNING**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☐ Accountability
- ☐ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: Historically, checklists have been used in professions where the stakes are high. Pilots, astronauts, and surgeons have long employed checklists to minimize errors that can mean life or death. The value of checklists is two-fold: (1) task saturation may result in overlooking a step or critical information, and (2) a task (or tasks) are so habitual that we leave out an important step inadvertently. The fast-paced, high stress nature of an emergency services dispatcher lends to the use of quick reference cards, checklists, and resources that are easily accessible. The dispatcher performed remarkably well during this incident, given its rapid escalation coupled with the complexity of a MAYDAY.

Currently, the fire dispatch center is provided access to all fire department SOPs, in addition to a copy of the command book utilized by field chief officers to organize the document incidents. Following the MAYDAY declaration and deployment of the RIT, the dispatcher prompted units not involved in the MAYDAY to switch their radios and operate on Talkgroup 23. This decision was predicated on an antiquated dispatch center policy and not consistent with fire department SOP. The IC quickly corrected the order and, although the dispatch announcement did initially lead to some confusion, it did not negatively impact the RIT operation.

Alert tones are commonly used in public safety communications to get the attention of responders when a priority or safety message is being transmitted over the radio. Policies and procedures in place at fire dispatch provide guidance on the routine use of these tones. Additionally, the incident commander may request the tones be initiated prior to the delivery of a message. It was noted that, on this incident, the tones activated upon the ICs order to evacuate the structure were short in duration. Interviews of members who were operating gas-powered saws on the roof revealed that they did not hear the order to evacuate.

It is unclear if longer transmission of the alert tone would have garnered the attention of those members. It was noted during the review that there seems to be no prescribed time requirement for use of the alert tone. It is also apparent that no common terminology exists within polices/procedures and SOPs, for example: the “Alert 3 Tone” is also described as the “warble tone”. Finally, the incident commander often relies upon the

dispatcher to repeat priority messages and orders. It should be noted that the fire dispatcher is a civilian and may not be well-versed in fireground operations. On occasion, while not intentional, the message is not restated clearly or accurately leading to confusion on an incident.

Recommendation: The After Action Review Team recommends that the Department adopt tactical checklists that will assist the dispatcher with the effective and consistent management of low frequency/high risk incident communications. All SOPs, policies and procedures should be reviewed and revised as necessary to ensure the use of common terminology. The capability of the incident commander being able to initiate an alert tone from the mobile radio should be explored.

FINDING #17—Field Unit Communication Practices	**CONCERNING**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☐ Accountability
- ☐ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☑ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: The content of a message is important in a high stress situation. On the fire ground, for example, clear and concise transmissions must be made. Otherwise, confusion may ensue.

On this incident, terminology that was inconsistent with the SOP or unclear led to confusion. When the MAYDAY lieutenant was located, for example, the phrase "we got him" was made on the tactical fireground talkgroup. This was misinterpreted by the IC and resulted in a course of action that was not indicated under the circumstances.

In addition to this example, the MAYDAY lieutenant did not provide, nor was he challenged to provide, a LUNAR. This acronym is used to remember critical information needed in a MAYDAY situation that includes location, unit, name, assignment and resources needed for rescue. It has further become a best practice to utilize "Who, What, Where" during a MAYDAY as the acronym LUNAR may be difficult to recall when under duress.

Concurrent with policy, unit status changes are typically conducted verbally over the radio. While this practice does provide the IC the benefit of knowing what resources are responding to and arriving at incidents, it does cause congestion on the talkgroup. This additional radio traffic is especially problematic when units are calling enroute after the initial assignment and when first in units are conducting their size-up, announcing the mode of operation, strategies, and tactics, and/or while units are operating within the IDLH. In part, the untimely radio traffic can be avoided by adherence to SOPs already in place. The new Motorola P1 computer aided dispatch system will also provide units with the ability to change their status silently via an interface on their device.

Radio

Fleet Map

Finally, the current radio fleet map is organized by zones and channels. There are four different fleet maps, assigned to radios based upon operational need: Master, FireBasic, Marine, and Support Services. Common field resources are assigned the FireBasic fleet map and contain zones lettered alphabetically beginning with 'A' and progressing to 'WW'. Each zone can host up to 16 channels. Units in the second battalion typically operate exclusively on Zone 'D'. Companies that may operate in

the second or the first battalions may maintain their radios on the 'L' zone, which provides access to the divisional and primary tactical talk groups countywide. While changing channels is managed easily via a knob on the top of the portable radio, switching zones requires navigation of the menu on the radio's display via soft keys. On this incident, the decision to move some units to another channel required switching to another zone while members were actively engaged in operations.

Recommendation: The After Action Review Team recommends that the Department adopt best practices regarding MAYDAY language (Who, What, Where versus LUNAR). A review of communications practices should be conducted to ensure radio traffic on tactical talkgroups are purposeful and appropriate. The Department should develop and provide training on a policy that addresses silent status updates. Finally, the committee recommends that the Department review and revise the fleet map to improve efficiency and ease of interoperability.

FINDING #18—Apparatus Staging	**CONCERNING**

NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☑ Accountability
- ☑ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☐ Falkenhan NIOSH
☐ Kirchner Internal	☐ Kirchner NIOSH
☐ Fogle NIOSH	☐ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Tactical

07

Discussion: According to Tactical Operations Manual #7, all units beyond the first alarm assignment are to report to a Level II Staging Area. This is an area, separate from the incident scene, where all units convene and await a tactical assignment. The establishment of a designated staging area prevents freelancing (accountability) and helps to maintain access/egress to and from the incident scene. Tactical #7 specifies that command, upon requesting additional resources, will inform dispatch of the designated location of the Level II Staging Area. The first unit leader arriving at the Level II Staging Area shall assume the role of "Staging Area Manager." This is usually the first arriving engine on the second alarm. If a staging area has not designated, the Staging Area Manager shall locate an area and inform command. Upon request of the second alarm, the incident commander did not designate a staging area, presumably because the incident was located within a large shopping center with most businesses closed, availing a large open parking lot. While this space is ideal for staging apparatus, this resulted in units and members gravitating to the incident scene and further complicating the ability of supervisors to maintain accountability.

Recommendation: The After Action Review Team recommends that the Department incorporate the concept of Level II Staging into training programs to reinforce a more disciplined and organized approach to deploying resources past the first alarm.

FINDING #19—Pre-Plans/Fire Surveys	**CONCERNING**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: Pre-Plans/Fire Survey Planning is the advance tactical planning of a site for positive and effective fire control operations. This meaningful tool can be used:

- as a basis to assist the officer-in-charge in making fireground decisions.
- to assist in refreshing the company officer's memory while enroute to an emergency.
- as a basis for simulation drills.
- to enable companies to become more aware of hazards in their districts.

SOP #400-13 provides guidance on the identification of target hazards, the preparation, and review of fire surveys. Completed surveys were submitted to the battalion chief for review and then maintained by individual units in binders on apparatus. The department previously ceased the practice of requiring monthly fire survey submissions and no easily accessible central database exists. The investigation of this incident revealed that there was no fire survey on record for the subject occupancy.

Recommendation: The After Action Review Team recommends that the Department research available software, including capabilities of the Motorola P1 CAD system to provide a repository for real-time access to pre-plans and fire surveys. Target hazards must be identified and pre-plans must be completed on them and updated when necessary.

FINDING #20—Emergency Services Personnel Mental Health	**CONCERNING**

NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☐ Accountability
- ☐ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☑ Stricker Street BOI
- ☐ FACETS Study

Discussion: The mental health and well-being of first responders is a top priority and, among other things, ensures that responders remain ready to perform safely and effectively in all aspects of their job. Any incident involving a MAYDAY or other significant situation can have long term impact on members far beyond the initial events on an incident. There is truly a very narrow window to "get things right" and take care of the members.

Personnel

22

On this incident, the initial alarm of responders who navigated the MAYDAY event remained on the scene to combat the fire during the defensive operations that ensued. This left those members not only physically exhausted, but mentally strained. After the MAYDAY was resolved, an on-scene debriefing took place for the individual unit officers while the balance of their crews continued with fire suppression efforts. No debriefing took place for those rank-and-file members, some of whom were directly involved with the MAYDAY rescue operation and mentally distracted, yet continued to engage in fireground operations.

In interviews with key incident participants long after the event occurred, they also commented that there were minimal interactions and follow up to ensure that they were coping with the stress of the event. This resulted in an untoward opinion of those in leadership positions.

Additionally, the Department's Peer Support Team has undergone recent transformation and has garnered mixed feedback from the membership. During interviews it was noted that several members, including some not directly involved in the MAYDAY, were visibly shaken. However, due to various factors, they were hesitant about speaking with Peer Support. It should be noted that a review and revamp of the Peer Support Team and Personnel #22 is currently underway.

Recommendation: The After Action Review Team recommends that the Department ensures that a mechanism is in place to follow up with members impacted by critical/high-stress incidents.

FINDING #21—Command Function	**STRENGTH**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☑ Accountability
- ☑ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☑ Falkenhan NIOSH
☑ Kirchner Internal	☐ Kirchner NIOSH
☐ Fogle NIOSH	☑ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: During this incident, it was noted that the Incident Command Book was utilized. The command book was rolled out in 2022 and included a training element on the Department's Learning Management System. This book contains several resources for the effective management of an incident, including tactical checklists and charts.

The incident commander recognized the hazards associated with a fire involving an auto parts store and requested a hazardous materials assignment early in the incident. The failure to recognize such a hazard may have resulted in the delay of suppression efforts and limiting the effect of hazardous runoff on the environment.

As previously discussed, fireground communication is often challenging. The incident commander was conducting their 360 evaluation of the structure and interacting with members both face-to-face and via radio at the time of the MAYDAY. Despite the ICs workload and initial lack of organizational support, they were able to acknowledge the MAYDAY and, with a sense of calm, begin to organize the rescue effort and request additional resources.

Finally, upon the incident commander's acknowledgement of the MAYDAY, the dispatcher appropriately restricted the talkgroup and shortly thereafter initiated the channel marker. These actions served to eliminate all unnecessary radio traffic and restrict communications to permit the incident commander, RIT, and MAYDAY lieutenant to communicate uninterrupted.

Reinforcement Action(s): The After Action Review Team recommends that the Department continue to reinforce training on hazardous materials resources, RIT competencies, and command competencies. These training programs should incorporate fire dispatch, where appropriate.

FINDING #22—Fireground Communications and Tactics	**STRENGTH**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☐ Accountability
- ☐ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☑ Falkenhan NIOSH
☑ Kirchner Internal	☑ Kirchner NIOSH
☐ Fogle NIOSH	☑ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: The BCoFD implemented Bluetooth technology built into the MSA G1 SCBA and Motorola APX portable radios in 2020. A great deal of time and effort was exhausted in the research, development, and training relevant to this technology. This initiative began following sub-par fire ground communications on a series of incidents that resulted in confusion and potentially dangerous situations. The technology works by way of microphones within the mask-mounted regulator (MMR) of the MSA G1 SCBA which connects via Bluetooth to the Motorola APX radio carried by the firefighter.

When the firefighter on air needs to transmit a message, they depress the push-to-talk (PTT) button on the radio or remote speaker microphone (RSM) and speak. Since the microphones are located within the MMR, all ambient noise is effectively eliminated and the message is transmitted with additional clarity. The successful deployment of this technology is largely dependent upon the seal of the facepiece to the user's face.

The flow of air that results from a loose-fitting facepiece or open bypass valve causes the transmission to be broken or garbled. The BCoFD has altered the facepiece donning procedure in an effort to ensure that a good seal is obtained. This procedure has since been adopted by MSA.

On this incident, it was noted that radio communications within the IDLH were remarkably clear. During a review of the audio recordings the AAR Team noted the absence of ambient noise when the MAYDAY lieutenant was transmitting. This included the PASS device, which was activated during several transmissions as heard on the video/audio footage recovered from the TIC.

All suppression and EMS transport units are assigned a portable radio for each riding position. This practice ensures the safety of members operating within the IDLH by affording them the ability to communicate freely. The sheer number of portable radios on an incident scene alone often plagues incident communications with accidental key-ups and unnecessary chatter. When a working fire is declared or additional alarms are requested, those additional units often call responding on the usually busy operational talkgroup and not the divisional talkgroup as specified by SOP. These transmissions are disruptive to the ongoing operations and endanger those members operating within the IDLH. On this incident, it was noted that units responding above the first alarm called responding on

the appropriate talkgroup. Further, only one transmission irrelevant to the MAYDAY occurred after its declaration and implementation of the command restricted Talkgroup.

The fire dispatcher and dispatch supervisor maintained adequate situational awareness during the MAYDAY incident and dispatched additional resources accordingly. It was noted by the AAR Team that incident benchmarks and other important information were frequently updated in the incident remarks. Staffing allowed the Dispatch Supervisor to assign another fire dispatcher to assist with the management/documentation of the MAYDAY incident.

Regarding fireground tactics, a constant and dependable water source is imperative for any fireground. On this incident, primary and secondary water sources were established. Additionally, it has been well-established that the control of exterior openings, including windows and doors, is crucial before and during fire suppression efforts. These openings have a direct impact on the intensity of the fire and progression rate of fire spread. Once doors and windows are opened or broken, the fire may convert otherwise uninvolved spaces to untenable conditions without much time or warning. The importance of maintaining control of these openings is included in present-day training programs and even stressed to the public through the "Close Before You Doze" campaign. During this incident, despite zero visibility conditions and a mostly glass storefront, crews showed considerable restraint by not breaking any glass and utilized appropriate methods to gain entry. This forward-thinking preserved the ability of crews to not only control the door, but the flowpath. Furthermore, a crew on Side Charlie was directed not to force a rear door as crews entered on Side Alpha. It was also noted that there was a discussion about breaking the front windows once the RIT became disoriented; however, since water was not yet on the fire, the decision was made to keep them intact.

Finally, the decision to commit members to assignments within the IDLH requires information and resources. The information gathered during a proper size-up by the first arriving officer is used to conduct a risk assessment and to identify the best point of entry for the attack crew if an interior attack is indicated. The officer must also consider the resources at their disposal, both on the scene and enroute, before committing crews to the IDLH. The location and extent of the fire, the type of structure, fire load, and water supply must also be considered. The initial arriving company officer on this incident directed their crew to force the front door and stretch an attack line but recognized that there were insufficient resources on scene to support further advancement into the structure.

Reinforcement Action(s): The After Action Review Team recommends that the Department continue training and practice on the proper donning of SCBA. Annual competency training should include an element of communications and Bluetooth troubleshooting within the IDLH. The Department should continue to reinforce the importance of coordinated ventilation, risk assessment, forcible entry, door control, and tactical SOP compliance through training. They should research and develop an SOP based upon best practices that outlines forcible entry methods and considerations.

FINDING #23—Use of Equipment	**STRENGTH**

NIOSH Top 5 Impact Areas:

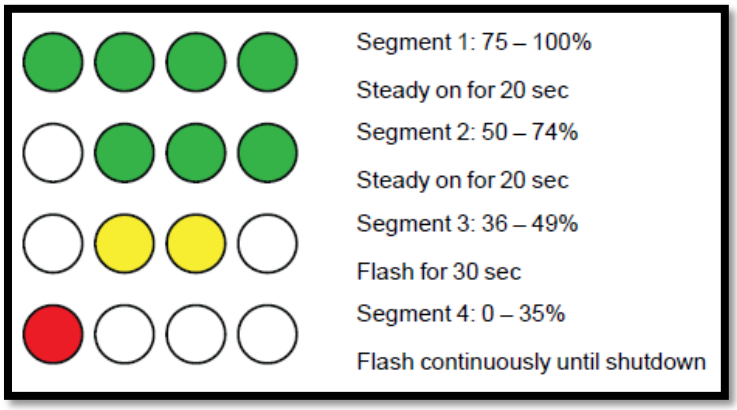
- ☑ Communications
- ☐ Accountability
- ☐ Incident Command
- ☑ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

☑ Falkenhan Internal	☑ Falkenhan NIOSH
☐ Kirchner Internal	☐ Kirchner NIOSH
☐ Fogle NIOSH	☐ Stricker Street BOI
☐ Efficiency Review	☐ FACETS Study

Discussion: Through interviews it was learned that the MAYDAY lieutenant utilized the indicators provided on the MSA G1 SCBA's heads-up display within his facepiece to identify and track his remaining air. This awareness led to his decision to kneel down and pause his effort to self-rescue to conserve air until the arrival of RIT. The MSA G1 SCBA provides multiple indicators that may be used to determine the user's remaining air:

- Head's-up display within the facepiece;
- LED indicator on the MMR;
- The Vibra-Alert on the MMR;
- Analog gauge (on control module);
- Digital read-out/corresponding color (on control module); and
- Lights on the power module visible to those to the rear of the SCBA.



The integrated PASS device was also used by both the MAYDAY lieutenant and RIT captain to assist with providing their location. During the interview with the MAYDAY lieutenant, it was noted that he turned off his PASS device at some point because he believed that it was interfering with their transmissions when the receiver asked them to repeat. In credit to the Bluetooth technology, the receiver never heard the PASS device in the background.

Finally, the location of the RIT equipment on apparatus is clearly marked by a reflective "RIT" sticker on the exterior of the compartment. This practice helps crews to locate and retrieve equipment quickly when every second counts.

Reinforcement Action(s): The After Action Review Team recommends that the Department continue to reinforce SCBA competency training and develop a quarterly training requirement. They should continue to reinforce regular RIT training competencies, to include the proper use of the PASS. Annual operational readiness inspections should include an audit of RIT equipment to ensure it is accounted for and appropriately located on apparatus.

FINDING #24—Individual Firefighter Tactics	**STRENGTH**

NIOSH Top 5 Impact Areas:

- ☑ Communications
- ☐ Accountability
- ☐ Incident Command
- ☐ Risk Assessment
- ☐ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: Arguably, the most significant factor contributing to a positive outcome on this incident was the MAYDAY lieutenant's ability to recognize that he was in trouble and initiate a MAYDAY. Often, firefighters are hesitant to call the MAYDAY; however, it cannot be stated enough that time is critical in these events. In a post-incident interview, the lieutenant credited his prior training as an element which aided his ability to navigate this complex incident.

Despite the emotional and physical stress associated with a MAYDAY, it was noted that both the MAYDAY lieutenant and RIT captain remained remarkably calm throughout the incident. Their ability to remain calm, particularly on the radio, contributed to the successful mitigation of the MAYDAY. Studies of a phenomenon called "auditory exclusion" have found that an elevated pulse rate can result in the failure to hear and acknowledge critical messages. Panic often results in the rapid consumption of valuable air and delays in locating the member in distress. In this case, following several unsuccessful attempts to contact the incident commander, the MAYDAY lieutenant solicited the attention of the dispatcher and called the MAYDAY.

While no pre-plan was conducted of this target hazard, it was by chance that the RIT captain was a frequent customer of the business and was familiar with the building's layout. Although the RIT did not deploy as a cohesive unit, this knowledge provided the captain with the ability to quickly locate the MAYDAY lieutenant and render assistance, three minutes and twenty-two seconds (3:22) after the declaration of the MAYDAY. As previously discussed, the ability of both members to remain calm was another factor that lends to the favorable outcome of this incident. In the eyes of a MAYDAY firefighter, the auditory presence of another member provided a reassuring sense of calm and hope.

Reinforcement Action(s): The After Action Review Team recommends that the Department continue to reinforce training on self-rescue, survival, and air management. High-target hazards within the district should be identified and visited by first-due crews. Pre-plans should be completed and stored for easy access on an incident.

FINDING #25—EMS Unit Readiness	**STRENGTH**

NIOSH Top 5 Impact Areas:

- ☐ Communications
- ☐ Accountability
- ☐ Incident Command
- ☐ Risk Assessment
- ☑ Standard Operating Procedures

Prior Reports or Studies:

- ☐ Falkenhan Internal
- ☐ Kirchner Internal
- ☐ Fogle NIOSH
- ☐ Efficiency Review
- ☐ Falkenhan NIOSH
- ☐ Kirchner NIOSH
- ☐ Stricker Street BOI
- ☐ FACETS Study

Discussion: It was noted that the ALS unit on the scene was properly positioned and that the providers were staged on Side Alpha with their stretcher and equipment as prescribed by Tactical Operations Manual #8. These actions helped to ensure that they were ready to receive the MAYDAY lieutenant immediately upon exit.

Tactical

08

Reinforcement Action(s): The After Action Review Team recommends that the Department continue to reinforce regular RIT training competencies to include the duties and responsibilities of EMS units at a MAYDAY incident.

Findings	Falkenhan Internal	Falkenhan NIOSH	Kirchner Internal	Kirchner NIOSH	Fogle NIOSH	Stricker Street BOI	Efficiency Review	FACETS Study
Effective Fireground Tactics	X	X						
Additional Command Staff and On-Duty Safety Officers		X				X	X	X
Freelancing	X		X	X				
Crew Integrity and Accountability	X	X	X	X		X		
Risk Assessment and Situational Awareness	X		X	X		X		
Command and Control Function	X	X				X	X	X
Crew Resource Management	X	X					X	X
Physical Fitness					X			
Knowledge of Fire Behavior	X	X	X	X				
Delay of Initial Dispatch				X				
Actions Taken During MAYDAY	X	X	X					
Proper Face Piece Seal			X					
Rapid Intervention Team	X		X	X		X		
Outdated SOPs								
MAYDAY Communication Practices	X		X			X		
Dispatch Communication Practices								
Field Unit Communication Practices	X							
Apparatus Staging	X							
Pre-Plans/Fire Surveys								
Role and Function of Peer Support Team						X		

The chart above depicts the findings from this report and summarizes them in comparison to previous reports.

CONSOLIDATED LIST OF RECOMMENDATIONS

Finding	Recommendation
Effective Fireground Tactics	• Provide training on the use of an "apartment lay" or "leader line" to achieve the desired reach. • The engine specifications committee, under the guidance of the Logistics Bureau, should re-evaluate the configuration of hose loads on engine companies. • Consider equipping each suppression company with a full complement of RIT equipment, to include large area search rope. Provide strong focus in training on large area orientation, search techniques, and nuances associate with fire incidents involving commercial/large occupancies. • Continue to provide ongoing training for all members on the effective use of thermal imaging cameras.
Need for Additional Command Staff and On-Duty Safety Officers	• Add chief officer-level positions and on-duty safety officers.
Freelancing	• Develop a post-incident Quality Assurance/Quality Improvement tool that ensures the review of events involving an IDLH and to identify instances of freelancing
Crew Integrity and Accountability	• Consider the immediate implementation of Level II Accountability for any incident within an IDLH Environment. • Explore other forms of accountability systems for their efficacy. • The term "PAIR Check" should be renamed to another term, to promote the accountability component of the tool as well as eliminate potential confusion with a "PAR." • A pre-entry accountability check should be incorporated into Standard Operating Procedures, as the practice currently only exists in a Safety Bulletin, which is not binding in nature.
Risk Assessment and Situational Awareness	• Develop a Standard Operating Procedure that addresses risk assessment on incidents. This SOP should be reinforced through targeted and frequent command competency training for all officers. • Research the availability and dependability of company identifiers on the SCBA shoulder straps.

Finding	Recommendation
Command and Control Function	• Implement an on-going command competency training program for all command officers (acting battalion chiefs and higher) to reinforce the concepts of transfer of command, in-car command, and fireground command and control. • The A2 software, and any other similar platform or tool used by the IC should be referenced in tactical SOPs. The command competency training should incorporate use of the air management software and any other tools utilized by incident commanders to reinforce proficiency.
Crew Resource Management	• Implement a policy that provides the rules of engagement for injecting a safety message (Remote Safety Inject) to the incident commander in the spirit of CRM. • Dispatch should announce the command engine assignment on the tactical Talkgroup, as is currently accomplished with the RIT engine, to prompt awareness for the incident commander. Unless absolutely critical to fireground operations, the incident commander should not reassign the command engine to other duties. • Regular command competency training should be utilized to reinforce the concept of Crew Resource Management.
Physical Fitness	• Continue to fund the partnership with a human performance or wellness company. • Explore the feasibility and impact of implementing NFPA 1582 physicals for all members as well as adopting the standardized Physical Ability Test process for new hires.
Knowledge of Fire Behavior	• Utilize the training provided by UL's Fire Safety Research Institute to provide additional education to all members of the science of fire behavior. • Ensure division supervisors on the roof are able to monitor the radio for important messages from command while simultaneously observing crews operating on the roof.
Delay of Initial Dispatch	• Cease the practice of issuing a "Pre-Alert" on the administrative channel as it lends to confusion and fosters a culture of freelancing.
Actions Taken During MAYDAY	• Conduct competency training to reinforce the importance of calling a MAYDAY early and the proper way to do so. • This incident should be used as a tool for educating all officers on the importance of continued fire attack during a MAYDAY.

Finding	Recommendation
Proper Face Piece Seal	• Reinforce the proper donning of the facepiece in training that takes place in the future. The skill must also be reinforced when members conduct their annual required fit-test.
Rapid Intervention Team	• Define the roles and responsibilities of the RIT Branch Director in SOPs. • Conduct an inventory to identify the various styles of RIT bags, and their locations, throughout the County. • The practicality of "RIT" SCBA cylinder covers to readily identify the units as such should be investigated. • Conduct regular RIT competency training to ensure crews are familiar with the location of RIT equipment and proficient in its use. • Conduct training on softening egress points during "Active RIT" operations.
Outdated SOPs	• Work with the volunteer organizations to create a platform where the SOPs are readily accessible. • Conduct an immediate assessment of SOPs to identify, in priority order, those that need to be updated or created. There should be a procedure in place for revisions that is clear and revision cycles should be mandatory. • Establish a procedure to ensure all members have read and understand new or revised SOPs when they have been introduced. • All SOPs should utilize and direct standard terminology consistent with the NFPA's Glossary of Terms.
MAYDAY Communication Practices	• Conduct training on the concept of ruthless preemption and incorporate it into regular RIT training. • Conduct additional research and testing of the remote activation of the EAB in concert with Electronic Services and Fire Dispatch. • The priority of maintaining MAYDAY operations on one talkgroup must be reinforced through SOPs and training.
Dispatch Communication Practices	• Adopt tactical checklists that will assist the dispatcher with the effective and consistent management of low frequency/high risk incident communications. • All SOPs, policies and procedures should be reviewed and revised as necessary to ensure the use of common terminology. • The capability of the incident commander being able to initiate an alert tone from the mobile radio should be explored.

Finding	Recommendation
Field Unit Communication Practices	• Adopt best practices regarding MAYDAY language (Who, What, Where versus LUNAR). • Conduct a review of communications practices to ensure radio traffic on tactical talkgroups are purposeful and appropriate. • Develop and provide training on a policy that addresses silent status updates. • Review and revise the fleet map to improve efficiency and ease of interoperability.
Apparatus Staging	• Incorporate the concept of Level II Staging into training programs to reinforce a more disciplined and organized approach to deploying resources past the first alarm.
Pre-Plans/Fire Surveys	• Research available software, including capabilities of the Motorola P1 CAD system to provide a repository for real-time access to pre-plans and fire surveys. • Identify target hazards and ensure pre-plans must be completed on them and updated when necessary.
Emergency Services Personnel Mental Health	• Ensure that a mechanism is in place to follow up with members impacted by critical/high-stress incidents.

Finding	Reinforcement Action(s)
Command Function	• Continue to reinforce training on hazardous materials resources, RIT competencies, and command competencies. These training programs
Fireground Communications and Tactics	• Continue training and practice on the proper donning of SCBA. • Annual competency training should include an element of communications and Bluetooth troubleshooting within the IDLH. • Continue to reinforce the importance of coordinated ventilation, risk assessment, forcible entry, door control, and tactical SOP compliance through training. • Research and develop an SOP based upon best practices that outlines
Use of Equipment	• Continue to reinforce SCBA competency training and develop a quarterly training requirement. • Continue to reinforce regular RIT training competencies, to include the proper use of the PASS. • Annual operational readiness inspections should include an audit of RIT equipment to ensure it is accounted for and appropriately located on apparatus.

Finding	Reinforcement Action(s)
Individual Firefighter Tactics	• Continue to reinforce training on self-rescue, survival, and air management. • High-target hazards within the district should be identified and visited by first-due crews. Pre-plans should be completed and stored for easy access on an incident.
EMS Unit Readiness	• Continue to reinforce regular RIT training competencies to include the duties and responsibilities of EMS units at a MAYDAY incident.

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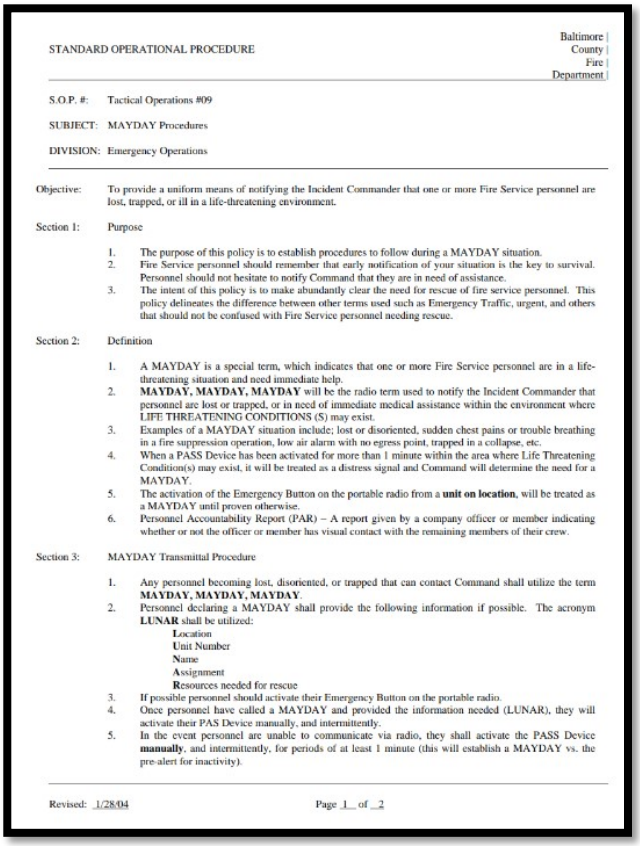
COMPLIANCE WITH STANDARD OPERATING PROCEDURES

The Baltimore County Fire Department operates under standing orders, or Standard Operating Procedures (SOPs) for both emergency situations and administrative tasks. The SOPs are arranged into the following sections for ease of reference:



STANDARD OPERATIONAL PROCEDURE

Baltimore County Fire Department

S.O.P. #: Tactical Operations #09

SUBJECT: MAYDAY Procedures

DIVISION: Emergency Operations

Objective: To provide a uniform means of notifying the Incident Commander that one or more Fire Service personnel are lost, trapped, or ill in a life-threatening environment.

Section 1: Purpose

1. The purpose of this policy is to establish procedures to follow during a MAYDAY situation.
2. Fire Service personnel should remember that early notification of your situation is the key to survival. Personnel should not hesitate to notify Command that they are in need of assistance.
3. The intent of this policy is to make abundantly clear the need for rescue of fire service personnel. This policy delineates the difference between other terms used such as Emergency Traffic, urgent, and others that should not be confused with Fire Service personnel needing rescue.

Section 2: Definition

1. A MAYDAY is a special term, which indicates that one or more Fire Service personnel are in a life-threatening situation and need immediate help.
2. **MAYDAY, MAYDAY, MAYDAY** will be the radio term used to notify the Incident Commander that personnel are lost or trapped, or in need of immediate medical assistance within the environment where LIFE THREATENING CONDITIONS (S) may exist.
3. Examples of a MAYDAY situation include; lost or disoriented, sudden chest pains or trouble breathing in a fire suppression operation, low air alarm with no egress point, trapped in a collapse, etc.
4. When a PASS Device has been activated for more than 1 minute within the area where Life Threatening Condition(s) may exist, it will be treated as a distress signal and Command will determine the need for a MAYDAY.
5. The activation of the Emergency Button on the portable radio from a **unit on location**, will be treated as a MAYDAY until proven otherwise.
6. Personnel Accountability Report (PAR) – A report given by a company officer or member indicating whether or not the officer or member has visual contact with the remaining members of their crew.

Section 3: MAYDAY Transmittal Procedure

1. Any personnel becoming lost, disoriented, or trapped that can contact Command shall utilize the term **MAYDAY, MAYDAY, MAYDAY**.
2. Personnel declaring a MAYDAY shall provide the following information if possible. The acronym **LUNAR** shall be utilized:
   - **L**ocation
   - **U**nit Number
   - **N**ame
   - **A**ssignment
   - **R**esources needed for rescue
3. If possible personnel should activate their Emergency Button on the portable radio.
4. Once personnel have called a MAYDAY and provided the information needed (LUNAR), they will activate their PAS Device manually, and intermittently.
5. In the event personnel are unable to communicate via radio, they shall activate the PASS Device **manually**, and intermittently, for periods of at least 1 minute (this will establish a MAYDAY vs. the pre-alert for inactivity).

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Tactical Operations Manual #9, an example of one of the Department's Standard Operating Procedures

- 200 Series—Fire Marshal's Office
- 300 Series—Communications
- 400 Series—Emergency Operations
- 600 Series—Emergency Medical Services
- 700 Series—Fire-Rescue Academy
- Personnel Series
- Tactical Operations Manual

The SOPs are housed on BCPoint, a local intranet site that is accessible only to those computer terminals or users who are inside the Baltimore County Government network. As such, the site is only accessible using an active directory protocol which requires a unique login, multifactor authentication, and frequent training on information security to remain active. Those members of the Baltimore County Volunteer Firefighter's Association who are not Baltimore County Government employees are not issued active directory credentials and are, therefore, unable to access the SOPs directly.

Any member of the department is empowered to submit changes or updates to SOPs through their respective chief officer. However, most often, updates are driven by changes to County policy or an identified need from the command staff level. There is no routine schedule for updates nor any quality assurance/quality improvement mechanism to periodically evaluate procedures. When SOPs are updated, the changes are made within a running revision log for that year. It can be difficult to reference this document to see the changes which have been made.

The Fire-Rescue Academy distributes a monthly list of prescribed training materials based upon a needs assessment of current topics and trends within the Department. One of these items is a review of a current departmental SOP. These training items are completed

on the department's learning management system. Members enter their completion of these classes into the department's record management system, currently Firehouse Software. Compliance from members of the BCVFA is encouraged, but not mandatory. Aside from the monthly training requirement, there is no mechanism by which the department ensures that members have read and understood a particular SOP when changes have been made.

The After Action Review Team reviewed each SOP that was applicable to the incident at Advance Auto Parts and assessed both the desired and actual actions which took place. Each action was categorized into one of three groups as it pertains to SOP compliance:

COMPLIANT: Crews were fully compliant with the SOP.

PARTIALLY COMPLIANT: Crews were partially compliant with the SOP.

NON-COMPLIANT: Crews were not compliant with the SOP.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 01	**Positive Pressure Ventilation**	**10/01/1997**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 3.B	The establishment of a fireground ventilation officer, familiar with the principles and practices of positive pressure techniques, should take place in the initial suppression operation. As with any ventilation practice, effective communication is paramount in effectively implementing positive pressure ventilation.	No Ventilation Group Supervisor was established on this incident.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

Research has shown that ventilation in the absence of effective fire attack can increase the amount of fire growth and heat release. This SOP was written in 1997 and does not reflect modern best-practices on the that topic.

On this incident, there were multiple requests during the MAYDAY event to “start PPV” even though the exact location of the fire was not known and there were no concurrent attempts to extinguish the fire. In addition, attempts were made to perform vertical ventilation on the roof to evacuate the smoke and super-heated gases. There was no coordination of ventilation and fire attack and, based on research from Underwriter’s Laboratories, completion of either of these tasks likely would have resulted in increased fire propagation. Further, the SOP contains no verbiage related to the risk assessment needed to deploy crews to a roof above a fire for the purposes of ventilation.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 06	**Personnel Accountability System**	**04/18/2016**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.A	At all times, supervisors are responsible to account for any person who is under this command.	Officers acted on this incident without clear knowledge of the whereabouts of their crew members.
Section 1.B	At all times, personnel are to keep their supervisors informed as to their whereabouts or assignments.	Personnel did not keep their officers informed of their actions and engaged in tasks without guidance.
Section 1.C.1	On all rescues and on multiple company incidents where SCBA is in use and/or more than one hand line is deployed the incident commander shall designate a Safety Officer.	An engine company officer was designated as the safety officer, but he elected to deploy with his crew. Fire Marshal 2, who electively responded from his residence, was appointed safety officer at 22:00, approximately 20 minutes after the initial arrival of the first engine.
Section 4.A.1	The unit supervisor shall be responsible for all personnel riding on the apparatus and verifying that the proper PAT's are on the Apparatus Collector Ring. He/she will retain the Officer Collector Ring.	The Apparatus Collector Ring is noted in helmet camera footage with incomplete PAT placement.
Section 4.A.2	All personnel who may become involved in any tactical operation will give their second PAT to the unit supervisor. The unit supervisor will place them on the Officer Collector Ring.	It is not clear in helmet camera footage if the PAT were deployed with the officers on the Officer's Collector Ring.

Section 4.B.1	When the IC or Safety Officer determines that the incident requires more stringent accountability, he/she will implement "Point of Entry Control" utilizing the Accountability Control Board.	While the safety officer on Side Alpha did verbalize the crews that entered and exited the structure, there was no Point of Entry Control and Accountability Board. Additionally, most command vehicles do not have a standardized accountability board, if any at all.
Section 4.C. 1-4	A Personnel Accountability Report [shall be completed]: 1. Any time that an evacuation/tactical withdrawal is ordered. 2. Whenever the strategy of the incident is changed. 3. At the discretion of the Incident Commander or the Safety Officer 4. When reporting "PAR," division or groups supervisors will report companies under their command. Example: "Division 3 is PAR for E1, E2, and T1."	The incident commander who assumed command during the MAYDAY did conduct a PAR. There is no guideline for how this PAR is conducted in the SOPs. Best practices should be considered in the inclusion of these procedures in the SOP.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

This SOP was last revised seven years prior to the incident. In addition, there was minimal compliance with the concept of crew integrity, as evidenced by the fact that several crews did not maintain visual or voice contact with their officer. The incident quickly escalated to the need for increased accountability and the PAT Tags for members on the scene were not in the position for rapid deployment.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 07	**Incident Command System**	**07/10/2019**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.5.4	Upon arrival of a higher-ranking officer, they will be briefed by the on-scene incident commander. The higher-ranking officer will then assume command. This transfer of command is to be announced an a Progress Report given. The new incident commander will reassign the officer being relieved of command responsibilities.	When the acting battalion chief arrived on the scene, a formal transfer of command did not take place. When the deputy chief arrived on scene, a formal transfer of command did not take place.
Section 1.5.5	For incidents that require the commitment of multiple companies or units, the first unit or member on the scene must announce "Command" and develop an Incident Command Structure appropriate for the incident.	The OIC from the initial piece to arrive did assume the command function.
Section 1.5.6.A	A Safety Officer shall be established as soon as practical. The IC retains the responsibility for Safety until the position is staffed.	The battalion chief assigned the role of safety officer to the OIC on the first arriving engine. This officer elected to deploy into the structure with his crew. A safety officer was not formally appointed until approximately 20 minutes after the arrival of the first unit.

Section 1.6.2.A. 1-3	Transfer of Command Procedure a. In order of preference, command should be transferred: 1. Face to face 2. Radio 3. Assumed by an officer where the original incident commander cannot be found.	When the acting battalion chief arrived on the scene, a formal transfer of command did not take place. When the deputy chief arrived on scene, a formal transfer of command did not take place.
Section 1.6.2.D. 1-6	The individual preparing to assume command shall, at an appropriate moment, request a status report from the incident commander. The status report should include 1. The current situation. 2. Any injuries, loss of life, etc. 3. All current control efforts and the status of those efforts. 4. The anticipated course of the incident 5. The location of on scene resources 6. Any other information pertinent to the incident.	When the battalion chief arrived on the scene, a formal transfer of command did not take place. When the deputy chief arrived on the scene, a formal transfer of command did not take place.
Section 3.1.5	When a supervisor is assigned to manage tactics on a particular floor, he/she shall be assigned the Division title associated with the corresponding floor number, for example, Division 5.	Aside from Side Charlie, there was no formal delegation of IMS roles in an organized structure.

Section 4.1.7	If a higher-ranking officer wants to affect a change in the management of an incident, they must first be on the scene of the incident, and then utilize the transfer of command procedure. Anyone can affect a change in incident management in extreme situations relating to safety by notifying the incident commander and initiating corrective action.	When the battalion chief arrived on the scene, a formal transfer of command did not take place. When the deputy chief arrived on the scene, a formal transfer of command did not take place. In addition, several individuals reported in the investigation that they were aware of safety issues but were averse to communicating that issue on the radio because of cultural norms in the Department regarding radio discipline.
Section 5.2	When initiated, ALL RADIO TRANSMISSIONS on a Command Restricted Talk Group will be limited to the incident commander, the crew(s) actively participating in incident operational activities, and Fire Dispatch. All other radio transmissions will be prohibited.	Crews maintained radio discipline during the MAYDAY event. Only one inappropriate transmission took place and it was quickly resolved by dispatch.
Section 5.2.4	Fire Dispatch will maintain and monitor the radio restriction and notify any unit making an unauthorized radio transmission on the talk group that the group is Command Restricted, and to move to another talk group.	Crews maintained radio discipline during the MAYDAY event. Only one inappropriate transmission took place and it was quickly resolved by dispatch.
Section 5.2.5	Fire Dispatch will announce the restriction over the Divisional TG associated with the Battalion TG as well as Main.	This did not occur and is no longer common practice within dispatch. The command restriction was only announced on the Tactical Talkgroup.

Section 5.3	The first PR [progress report] shall be transmitted at approximately ten (10) minutes after the BIR. The Dispatcher will "prompt" the incident commander if no PR is received after fifteen (15) minutes. Thereafter, PR's shall be transmitted at intervals deemed appropriate by the incident commander. A PR shall be transmitted after each transfer of command. However, in no case should an interval exceed thirty (30) minutes.	Due to the rapidly evolving incident and the numerous radio transmissions, a Progress Report was not provided, as directed in the SOP.
Section 6.2.2. A-B	a. Command, upon requesting additional resources, will inform Dispatch of the designated location of the Level II staging area. b. The 1st unit leader arriving at the Level II staging area, and without orders to the contrary, shall assume "Staging Area Manager." i. The first arriving engine on the 2nd alarm shall assume Staging. ii. If a staging area has not designated, the Staging Area Manager shall locate an area and inform command. iii. Truck and Squad Officers should not be used as the Staging Area Manager.	A formal Staging Area was not established nor was a Staging Area Manager appointed.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

This SOP was last revised four years prior to the event. Compliance with the basics of the transfer of command and the delegation of Divisions and Groups was poor.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 08	**Fireground Operations**	**07/10/2019**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Objective	3. It is the responsibility of the incident commander for determining the appropriate fireground strategy and tactics. Once initiated, it becomes the incident commanders job to ensure that all personnel are safely operating within the correct strategy. 4. Managing the fireground strategy must start with the arrival of the first unit and be constantly monitored and evaluated throughout the entire incident. The initial incident commander will include the fireground strategy in the on-scene report. 5. The initial Fireground strategy provides a starting point for fireground operations. Once the strategy is announced, all firefighters know whether to operate on the interior or exterior of the building. The fireground strategy cannot be a mystery, everyone operating on the fireground must be operating in the same strategy mode (Offensive, Defensive or Transitional).	The initial IC announced on the radio that no entry would be made until additional resources arrived. E56 did announce a defensive plan until others arrived but it was not clear after that point. No one suggested that attacking from SIDE Charlie with larger hose lines would be the best option.

Section 1.B.1C	Upon arrival, the Officer shall perform the following tasks: 1. Transmit a Brief Initial Report (BIR) 2. Transmit a Water Supply Plan to units responding and advise if assistance is needed from other responding Engine Companies. 3. Establish an appropriate level of command. 4. Conduct an initial size-up and risk assessment. 5. Perform a 360 degree size-up of the involved structure unless the size of the structure, or immediate fireground concerns, make a 360 impossible.	The first-in OIC performed a BIR, established a constant water supply, addressed the command function and attempted to complete a 360 of the structure.
Section 1.B.1D 2-3	2. Designate an Incident Safety Officer in accordance with (Personnel 21, 2.C) or; 3. Shall retain Incident Safety Officer in the early stages of an incident until adequate resources have been assembled on the fireground.	The initial IC retained the safety officer role. When command was transferred to the first arriving chief officer, the person to whom safety was delegated elected to deploy into the structure with his crew.
Section 2.A.1	The 1st arriving engine, when dispatched as a Fire Box, should initiate a constant water supply. They should locate the closest water source in their response path and lead off. The engine shall proceed to a position on of the structure that offers the greatest tactical advantage of the structure.	E56 was the first engine on scene. They complied with the establishment of a constant water supply.

Section 2.B.1.A	2nd Arriving Engine: 1. Should complete the water supply for the 1st arriving engine upon direction from the IC: a. In hydrant areas, the 2nd arriving engine can pump the 1st engine's hydrant.	E413 was the second engine on the scene and positioned on the first engine's hydrant.
Section 2.B.4.A	The OIC of the 2nd engine will be assigned as the Division Officer on the fire floor and will assume responsibility for crews operating in this area unless: a. The IC has directed the 2nd arriving engine to operate in some other area.	The OIC of the second engine was delegated the role of Side Charlie. The officer eventually deployed with his crew into Side Charlie.
Section 2.B.7	The 3rd arriving engine is the most versatile 1st alarm unit. The Officer and crew should be capable of undertaking any fireground operation.	The third engine on the scene was E18. They positioned their apparatus on the Bravo side, and deployed to Side Charlie.
Section 2.C.2	The Fourth Engine to arrive on the scene with a minimum of four (4) entry personnel will be designated the Rapid Intervention Team (RIT). While the RIT will not be used for any other specific group or division assignments, company Officers should consider this resource as "Active RIT", one that can assist in throwing ground ladders, the advancement of hose lines, etc., while maintaining operational readiness to deploy if necessary .	The 4th engine on the scene was E2. They were deployed to tactical operations.
Section 2.C.3	At least 4 entry members shall report to the scene in full turnout gear including SCBA, and assume RIT.	The initial RIT was made up of only three members.

Section 2.E. 1-3	5th Arriving Engine COMMAND ENGINE 1. The driver shall position the apparatus away from the incident scenes as directed by the OIC or command in a manner that it will not block other apparatus. 2. Dispatch will designate the Fifth Engine as the command engine. 3. All members shall report to the command post with Full PPE, tools and SCBA. a. The officer will assume the duties of the Incident Safety Officer, should one not be designated. b. One member of the crew will monitor the SCBA A2 accountability system for the incident commander. c. One member of the crew will document on the command board as directed by the IC. d. One member of the crew will be designated as entry control.	The 5th arriving engine was E19. They were assigned RIT. No engine company was ever assigned command engine duties.
Section 3.B.1.B	The Officer shall bring the Thermal Imaging Camera (TIC) and appropriate tools.	The OIC on T18 did have the TIC in his possession.
Section 3.B.1.D	The Officer and Search firefighter will work together as the Inside Team to perform the primary search.	The OIC and search firefighter from T18 did not maintain voice or visual contact inside the structure.

Section 3.B.1.E. a-d	The Officer will determine where to start the search based on the following criteria: a. Location of the fire. b. Location of reported victims. c. Time of day. d. Information received from Dispatch and once on scene.	A risk assessment was not completed by the OIC that took into consideration the lack of knowledge of the location of the fire, the lack of any reported victims and the time of day.
Section 3.B.1.G	The Officer will advise command and/or the Division/Group Officer of the Inside Team's intended destination and tactical objective. Command will be advised immediately when the objectives have been met.	The OIC did not announce the tactical objective and intended destination to command.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

SOP Tactical #8 outlines the duties of apparatus based on their arrival sequence. The arrival sequence on this incident was greatly impacted by the self-dispatch of units based on the "pre-alert" and by the fact that numerous volunteer fire stations were unable to respond due to staffing issues. As a result, units were deployed to tasks contrary to what was enumerated in the tactical SOP.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 09	**MAYDAY Procedures**	**01/28/2004**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.2	Fire Service personnel should remember that early notification of your situation is the key to survival. Personnel should not hesitate to notify command that they are in need of assistance.	According to TIC recordings, the MAYDAY lieutenant became distressed at approximately 21:53. The MAYDAY was declared at 22:02. There was a ten-minute delay in declaring the MAYDAY. In addition, the RIT captain did not verbalize a MAYDAY when he became lost. Approximately three minutes transpired from when he requested the air horns on SIDE Alpha to the point where he asked command to send someone in to find them.

Section 2.1-3	1. A MAYDAY is a special term, which indicates that one or more Fire Service personnel are in a life-threatening situation and need immediate help. 2. MAYDAY, MAYDAY, MAYDAY will be the radio term used to notify the incident commander that personnel are lost or trapped, or in need of immediate medical assistance within the environment where LIFE THREATENING CONDITIONS may exist. 3. Examples of a MAYDAY situation include: lost or disoriented, sudden chest pains or trouble breathing in a fire suppression operation, low air alarm with no egress point, trapped in a collapse, etc.	The MAYDAY lieutenant was disoriented and running low on air. Although delayed, his transmission of a MAYDAY was appropriate. The RIT captain, who became disoriented, did not verbalize a MAYDAY.
Section 3.1	Any personnel becoming lost, disoriented, or trapped that can contact command shall utilize the term MAYDAY, MAYDAY, MAYDAY	The MAYDAY lieutenant was disoriented and running low on air. Although delayed, his transmission of a MAYDAY was appropriate. The RIT captain, who became disoriented, did not verbalize a MAYDAY.
Section 3.2	Personnel declaring a MAYDAY shall provide the following information if possible. The acronym LUNAR shall be utilized: Location Unit Number Name Assignment Resources needed for rescue	The MAYDAY lieutenant verbalized his location and that he needed help locating his way out of the structure. The RIT captain also verbalized that resources were needed to help the two members locate the exits. The members in distress were not challenged nor did they provide the balance of the LUNAR.

Section 3.3	If possible personnel should activate their Emergency Button on the portable radio.	The MAYDAY lieutenant did not activate the emergency button on his radio nor was he instructed to do so by command or dispatch. He did not have ruthless pre-emption and encountered several carrier rejects while attempting to make several critical transmissions.
Section 3.4	Once personnel have called a MAYDAY and provided the information needed (LUNAR), they will activate their PASS Device manually, and intermittently.	The MAYDAY lieutenant activated his PASS device and it was helpful in the RIT captain locating him.
Section 4.1	Upon receipt of a MAYDAY only radio traffic specific to the MAYDAY situation shall occur. The incident commander will control all radio communication. In the event critical information must be passed to command, personnel may provide that information.	The Talkgroup was command restricted and a channel marker was used to remind crews of that fact. Units maintained radio discipline and only one transmission not related to the MAYDAY was made during the event.
Section 4.2	The incident commander shall announce or cause to be announced the MAYDAY situation.	BC2 immediately announced that T18 had a MAYDAY.
Section 4.3	In the event a MAYDAY is received via radio and the personnel needing assistance can and have provided the LUNAR information, an immediate PAR will not be necessary.	A PAR was initiated by the chief officer that assumed command during the MAYDAY. This occurred because he had flawed intelligence that the MAYDAY lieutenant had been removed.

Section 4.5	If deemed necessary, the Incident Commander may utilize additional Tactical Talkgroups for non MAYDAY/RIT operations. It should be noted that at no time should the crew involved in the MAYDAY be switched to an alternate Talkgroup.	The IC did not request that units be reassigned to a separate Talkgroup but Dispatch complied with their SOPs and performed that move.
Section 5.1	Dispatch will assign an additional alarm to the incident. This will be either a second alarm or an additional alarm, designated to be resources that will be available for the incident commander to deploy.	A third alarm was requested once the MAYDAY was declared.
Section 5.2	Section 5.2 Dispatch shall assign a specific Operator to monitor the Talkgroup during a MAYDAY event.	Dispatch maintained an operator to monitor the MAYDAY operations.

GENERAL ASSESSMENT

OUTDATED SOP AND PARTIAL COMPLIANCE

This SOP was last revised nine years prior to the incident. There was a delay in declaring the MAYDAY in both the case of T18 and the RIT captain. The LUNAR information was not completely provided, although the information that was conveyed was instrumental in locating the missing members. When the MAYDAY was declared, it was quickly acknowledged, and a reinforced alarm was assigned to the call. There was confusion related to the PAR as well as to the assignment of units not engaged in the MAYDAY to a separate talk group.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 18	**Rapid Intervention Team**	**06/03/2016**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 2.4	Rapid intervention Team (RIT) – Will be a company of at least 4 entry level (white tag) Fire Service Personnel established, equipped, identified, and solely committed to the locating of and rescuing of lost/ trapped firefighter(s).	The initial RIT Team on this incident consisted of three firefighters.
Section 2.5	Rapid Intervention Task Force (RITF) – Will consist of the next due: Engine Company, Truck or Rescue Company, and an Advanced Life Support Medic Unit. In the event the Engine and/or Truck Company assigned to the RITF does not have a mini-mum of four (4) entry level personnel, the IC shall be notified as soon as practical to assist him/her with strategic planning.	The RITF was dispatched on this incident and included the working fire assignment
Section 3.1.A	The Fourth Engine to arrive on the scene will be assigned/designated the RIT; this does not prevent the incident commander from assigning earlier arriving companies or additional companies to the RIT based on the current conditions and/or staffing levels.	E19 was assigned the function of RIT by fire dispatch. They were the fifth engine to arrive on scene.
Section 3.1.B	Rapid Intervention Team(s) will not be reassigned to any other non-critical function until relieved by adequate replacements. The IC will have a RIT team established within the first alarm, which will relieve the initial “2 out” requirements, of the “2in/2out” policy.	The RIT captain directed the balance of his crew to assemble the RIT tools on Side Alpha. He conducted a 360 and, upon return to Side Alpha, he noted that they were assisting a crew in the deployment of a hose line.

Section 3.1.B.3	The incident commander will ensure that all radio traffic is strictly monitored/ controlled.	The talkgroup was command restricted with a channel marker.
Section 3.1.B.4	The incident commander will deploy the RIT to the last/best known location of the lost/trapped firefighter(s).	The RIT was deployed by the IC to the last known location of the MAYDAY lieutenant.
Section 3.1.B.5	The incident commander will assign re-placement RIT(s).	A mutual aid company was immediately identified as the backup RIT.
Section 4.1	The Rapid Intervention Task Force (RITF) will consist of the next due: Engine Company, Truck or Rescue Company, and an Advanced Life Support Medic Unit. This assignment is in addition to the first or greater alarm assignment, and is an addition to the second alarm (if called prior to the "working fire" upgrade). In the event the Engine and/or Truck Company assigned to the RITF does not have a minimum of four (4) entry personnel, the IC shall be notified as soon as practical to assist him/her with strategic planning.	The RITF was dispatched on this incident and included the working fire assignment.
Section 5.3.A	The Safety Officer will also assess (and advise the IC) of RIT deployment to make sure adequate coverage of RIT teams if provided.	The safety officer verbalized entry and egress of RIT personnel.
Section 5.4	The RIT Group Officer will as soon as possible/practical establish RIT Entry Control.	Informal RIT Entry Control was established; however, it was not announced over the radio or conducted in accordance with SOPs.

Section 5.5	A RIT Action Plan shall be developed by the RIT Group Officer to include the search parameters for lost/trapped firefighter(s). (See Appendix D) A. LUNAR B. Listen for potential radio communications from lost/trapped firefighter(s) C. Listen for PASS unit activation D. Information from other operating units E. Use of Thermal Imaging equipment F. Physical search G. Utilization of the MSA A2 Accountability Information pertaining to crew and pack ID.	A RIT Action Plan was not developed for this incident. Despite this, the RIT captain monitored the Talkgroup and immediately noted when the MAYDAY lieutenant was in distress. In addition, the PASS device was used as a tool to locate the MAYDAY lieutenant.
Section 5.6	The RIT Group Officer will assign companies to Objective Based Deployment tasks. A. Locate and maintain B. Extrication C. Resources	There was no delegation of tasks by the RIT Group Supervisor.
Section 6.1	The establishment of a full (4 person) RIT will relieve the initial “2 out” requirements, of the “2 in/2 out” policy	The initial RIT consisted of three members.

Section 6.4	Planning requirements of the RIT: A. Conduct size-up of the structure or area, utilize pre-plan information when and if available (See Appendix A) B. Confirm location of all units working in the IDLH environment C. Determine all access points into the structure, and the most rapid access to the hazard area(s) including but not limited to: • Placement of ground ladders, • Exit illumination (lighting of egress areas), • Forced entry points, • Plan where to acquire and deploy protective hose-line if needed for rescue, • Above information. D. Establish tool staging area for RIT tools, (See Appendix C) E. Being to develop the RIT Action Plan, (See Appendix D) F. Monitor all radio traffic on the fire ground. G. Assign crew deployment responsibilities.	The RIT captain was in the process of conducting a 360 of the structure when the MAYDAY was called. Tools were set up but the RIT Bag was not included with those tools nor was it deployed when the MAYDAY was called.

Section 6.5	The focus of the initial RIT during Deployment is to: A. Search, recon, and locate lost/trapped firefighter(s), B. Evaluate and/or provide an air supply and emergency care to lost/trapped firefighter(s), C. Remove the lost/trapped firefighter(s), if possible, D. Communicate with the Incident Commander/RIT Group Officer on resources needed to protect and/or remove the lost/trapped Fire Service Personnel.	The MAYDAY lieutenant was quickly located by the RIT captain.
Section 7.1.A	Upon locating the lost/trapped firefighter (s) deactivate the PASS device. Attach a lifeline to located firefighter(s)	Search rope was not deployed on this incident.
Section 7.1.C	Air supply is the number one priority, therefore, determine how much air the located firefighter(s) have left and review your options: • Guide located firefighter(s) out of building, if possible, • Secure to spare SCBA and make your exit, • Exit using the RIT Bag, • Exit while using the MSA ExtendAire II (buddy-breathe) • Use Confined Space Air Cart	The RIT captain successfully used the MSA buddy breathing system to supply breathing air to the MAYDAY lieutenant.

Section 7.1.E.2	A search line should be deployed directly to the location of the located firefighter(s). This will allow for a rapid exchange of crews protecting the located firefighter(s). If this lifeline is attached to the lost/ trapped firefighter(s) (as in Section 1a) you will have to manage/or remove this lifeline during the removal process.	No search rope was deployed on this incident.
Section 8.1	A Tool Staging Area will be established for all RIT Operations by the initial RIT.	Tools were set up but the RIT Bag was not included with those tools nor was it deployed when the MAYDAY was called.

GENERAL ASSESSMENT

OUTDATED SOP AND PARTIAL COMPLIANCE

This SOP was seven years old at the time of the incident at the Advance Auto Parts. Crews were compliant with certain parts of the SOP, such as the restriction of the talk group with a channel marker, tracking of members entering by the safety officer, and the immediate identification of a back-up RIT. This team, however, did not deploy as others entered at the direction of the officer on SIDE Alpha. It should be noted how quickly the MAYDAY lieutenant was located and the efficacy of the use of the buddy breathing whip. There were moderate issues with deployment of the RIT bag as well as ensuring that the initial RIT was not engaged in non-critical functions. The initial RIT Team was made up of three members. When they deployed, search rope was not used.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Tactical 28	**Emergency Withdrawal Procedures**	**08/22/2012**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.1.C	Command may consider Tactical Withdrawal of personnel during a MAYDAY operation thus, limiting the exposure of fire crews while supporting the ongoing RIT operation. In most cases however, suppression efforts must continue to ensure the safety of the MAYDAY and ensuing RIT operations. It is imperative that all personnel recognize that a MAYDAY does not imply a Withdrawal!	The chief officer that assumed the IC function during the MAYDAY assumed that the lieutenant in distress was out of the structure. He elected to implement an emergency evacuation of the structure. This created confusion on the fireground.
Section 2.1	Command may order an Emergency Evacuation of personnel from a building when personnel are in imminent danger of injury or death because of, but not limited to, an impending structural collapse, increased fire behavior (i.e., back draft or flashover condition), other hazardous situations (i.e., major gas leak, etc.) requiring the immediate evacuation of firefighting personnel.	The chief officer that assumed the IC function during the MAYDAY assumed that the lieutenant in distress was out of the structure. He elected to implement an emergency evacuation of the structure. This created confusion on the fireground.
Section 2. Command Procedures. B	Command Procedures: Apparatus operators will sound their air horns for a period of 30 seconds.	The MAYDAY lieutenant and the RIT firefighter requested that air horns on Side Alpha be sounded to help orient them to the location of the exit. This occurred at the same time when crews heard the evacuation order and subsequently sounded the air horns all around the building.

Section 2. Dispatch Procedures. A	When directed by Command, Fire Dispatch will: 1. Initiate the "Alert 2 Warble" tone.	Dispatch initiated a short "Alert 2 Warble" tone when the IC ordered the evacuation.
Section 2. Operational Procedures. A	Division, Group and Company Officers will direct their crews as ordered to efficiently facilitate the order.	Crews continued to operate on the roof attempting to make ventilation cuts after the evacuation was ordered.
Section 3. Operational Considera-tions. A.1-4	When command orders a Tactical Withdrawal, Emergency Evacuation, or Abandon Your Position, you should consider the following: 1. Review, evaluate and revise the Incident Action Plan. 2. Implementation of Level II Accountability. 3. Expand the Incident Command Organization as needed to assist with increased level of accountability and supervision. 4. Requesting Fire Dispatch to institute a "Command Restricted Talk Group."	As the MAYDAY was managed and when the subsequent evacuation order with announced, there was no transition to a Level II accountability.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

This SOP was over 11 years old at the time of the incident. It must be continually reviewed for efficacy and updated. While the evacuation order was issued with flawed intelligence that the MAYDAY lieutenant had been removed, officers failed to ensure that members complied with the directive.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
300-05	Fire/EMS Dispatch Procedures	02/07/2002	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.A	The Baltimore County 911 Center's Fire Dispatch Section will receive and dispatch all Fire/EMS incidents in accordance with policies and procedures developed and set forth by the Fire Chief	Early Dispatch, a policy initiated at the direction of a previous Fire Department administration, was followed in this case. This policy calls for the dispatch of "life over property." There was an approximate ten-minute delay in the dispatch of the Advance Auto Parts Fire.
Section 2 General	All units shall be dispatched according to approved running assignments.	Crews were notified of the incident via the ADO "pre-alert" and companies who were not on the running assignment elected to respond.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

While Fire Dispatch did comply with the internal policy of "Early Dispatch" the lack of determinants and prioritization of calls ultimately resulted in a ten-minute delay in the alerting of units. The "pre-alert", which informally resolved that issue, also caused units not on the assignment to self-dispatch.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
300-06	Special Rules for the Assignment of Apparatus	06/03/2016	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 2.A 1-5	When a first alarm assignment has been dispatched, and units at location advise that they have a "Working Fire" the following equipment will be automatically dispatched: 1. The first due Medic (at the Medic Level of Care) 2. The first due Air Unit 3. A Rapid Intervention Task Force—RITF 4. The first due Rehab Unit. 5. If the first due Squad/Floodlight Unit is unavailable or has not responded, upon declaration of “Working Fire,” the next due Squad/Floodlight Unit will be automatically dispatched.	A working fire profile is usually dispatched in its entirety. This consists of one engine, a truck or squad, one medic, an air unit (unless one is already at location), coffee wagon and possibly REH20 depending on the area. A safety officer is also dispatched. The RITF is included in the assignment. This is not changed unless directed by command or units are limited and dispatch obtains direction from command. Discretion is most often left to operational units.

Section 2.B 1-3	If the incident commander requests a RIT Task Force Response, or a RITF is dispatched for a working fire or greater alarm, the following equipment will automatically be dispatched: 1. First due Engine. 2. First due Truck or Squad/Rescue Unit. 3. First due Advanced Life Support Medic Unit	A RITF is as stated but normally not requested. Typically the RITF is dispatched by the Main Dispatcher when a unit arrives at location and immediately request a second alarm. Once a second a alarm is requested the alarms progress in order. None of these profiles are supplemented and are dispatched in entirety unless command, FDX and ADO determine that there are limited resources available in the County.
Section 6.A 1-2	The first due Squad or Floodlight will be dispatched on all first alarm Fireboxes meeting the following criteria; Night Time Response Hours: 1. May 1—Sept. 30, 20:00—06:00 2. Oct 1—April 30, 17:00—06:00	The SOP is outdated and a memo was sent to Dispatch revising these hours to 0700 to 1900 to maintain consistency with the PSAP center's work shift.

GENERAL ASSESSMENT

OUTDATED SOP AND PARTIAL COMPLIANCE

Due to the improvement in illumination technology on all apparatus, there is no longer reference to the FLOOD LIGHT specialty piece in the response profiles anymore. In most cases now the assignment is truck OR squad and the incident commander is asked if "they want the squad to be backed up" given the limited availability. The dispatcher almost always backs up with the next due truck if applicable. The 300 SOP's will not be current once Motorola P1 goes live. The 300 Series SOP are outdated and often not consistent with current practice or updated with changes to Fire Dispatch. Often a memo or change from the Chief to the 911 Center is not reflective in the SOP's.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
300-13	Fireground Command and Tactical Talkgroups	02/07/2002	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1	Dispatch will NOT monitor any TAC TG. All communication to Dispatch must be through COMMAND via the FGC TG unless an Emergency situation occurs. All request for additional resources must come from the incident commander.	The dispatcher on this incident monitored the talk group and communicated with the MAYDAY lieutenant, as needed.
Section 10	On multi-alarm(s) incidents, (second alarm and greater) including all "Working Fires", units will respond and report "enroute" & "at location" status's on the divisional talkgroup assigned to the Command Net or FGC talkgroup. If a unit(s) are needed prior to staging, Dispatch will instruct the requested unit(s) to switch and operated on the fireground command talkgroup. All other units are to report to the staging location and report to the Staging Officer.	There was no Staging Officer assigned on this incident. Units did maintain radio discipline and did not call responding on the tactical talk group.

GENERAL ASSESSMENT

OUTDATED SOP AND GOOD COMPLIANCE

This SOP was over 20 years old at the time of the incident. The dispatcher complied with the SOP and units complied with the radio discipline outlined in the SOP.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
400-13	Fire Survey Planning	05/21/2002	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.A.1-4	Purpose of Fire Survey Plans: 1. For use as a basis to assist the Officer-in-Charge in making fireground decisions. 2. To assist in refreshing the Company Officer's memory while enroute to an emergency. 3. For use as a basis for simulation drills. 4. To enable companies to become more aware of hazards in their districts.	There was no Fire Survey Plan on record for the Advance Auto Parts. There is no formal distribution of any Fire Survey Planning throughout the County at the time of the incident.
Section 3.F	Fire Surveys are to be developed on a monthly basis. 1. Battalion and Station Commanders will coordinate building selection for survey completion. 2. It will be the responsibility of the Battalion/Division Chief and Station Commander to see that all Fire Survey Plans remain current. 3. The Battalion Chief shall forward a copy of each survey to the Safety Office, on a monthly basis.	There was no Fire Survey Planning on record for the Advance Auto Parts. There is no formal distribution of any Fire Survey Planning throughout the County at the time of the incident.

GENERAL ASSESSMENT

OUTDATED SOP AND POOR COMPLIANCE

This SOP was over 20 years old at the time of the incident. There was no advanced planning information available to the officers on this incident pertaining to fire suppression strategies and recommendations for this structure. Fire surveys are not completed monthly, as directed. If they are completed, they are done so on paper and all stations do not have access to the information.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
400-14	Field Operations In-Service, Company Training and After Action Reviews	01/01/2021	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 2.A	By December 1 of each year, the Fire-Rescue Academy will release an annual training plan for the next calendar year. Adjustments to the Annual Training Plan shall only be released after approval of the Chief Officer of the Fire-Rescue Academy.	No training plan was developed or distributed by the Fire-Rescue Academy in 2022. Of note was a change in Fire-Rescue Academy leadership in late September 2022 and no template or process was in place for the development of this plan.
Section 5.1	The Fire-Rescue Academy shall facilitate Fire/Rescue and EMS training on an annual basis. The Fire-Rescue Academy shall provide one four (4)-hour block of psychomotor Fire/Rescue Training and one four (4)-hour block of psychomotor EMS training per year, per member. The schedule for this training shall be included in the Annual Training Plan.	Annual training facilitated by the Fire-Rescue Academy is inconsistent and often dependent on the budget. EMS training is often accomplished based upon the need to maintain clinician licensing.
Section 6.A	Every sixty days, the FRA will release one (1) online training presentation to be completed through the department's learning management system. These presentations will be in addition to in-service and monthly training requirements.	This is not completed. The FRA is not adequately staffed to fulfill this obligation.

Section 7.A.1-4	Each month, each member of the department shall complete the following training activities: 1. SOP Review. Each member shall review one (1) SOP selected by the department. They will be responsible for individually taking, and passing with a 70%, a quiz on the SOP selected. This will be completed on the department's learning management system. 2. Case Study/Tabletop Discussion. Company officers shall facilitate a discussion on a recent NIOSH Line of Duty Death, near-miss event, Baltimore County Fire Department After Action Review, or EMS Case Study. Each member of the shift shall participate. The Fire-Rescue Academy, in coordination with the Safety Office, will distribute the report with a list of discussion points and other resources for officers to utilize in their discussion. 3. Fire Drill of the Month. Each member shall complete one fire-related drill of the month as distributed by the Fire-Rescue Academy. Station Officers will be responsible for facilitating the drill with each of their assigned members. BTFs should be used as an available resource for this activity. 4. EMS Drill of the Month. Each member shall complete one EMS-related drill of the month as distributed by the Fire-Rescue Academy. Station Officers will be responsible for facilitating the drill with each of their assigned members. BTFs should be used as an available resource for this activity.	Monthly training is published on a regular basis to include SOP review, case study, and fire/EMS drill of the month. Currently, no quiz accompanies the SOP review. FRA staff makes a concerted effort to choose topics appropriate for seasonal hazards and based upon recent significant incidents within the region. Historically, Battalion Training Facilitators (BTFs) are vastly underutilized to support monthly training.

GENERAL ASSESSMENT

SOP IN NEED OF REVISION AND POOR COMPLIANCE

This SOP was overhauled in 2021 to focus largely on training requirements outlined by ISO. Inadequate staffing and budgetary support of the Fire-Rescue Academy lends to inconsistent compliance with this SOP by both field members and the FRA. Training initiatives and projects led by other chief officers are often not coordinated through the FRA, causing challenges with the development of an annual training plan. Training documentation is insufficient, only capturing monthly training requirements and not documenting training in critical areas such as SCBA use, RIT, Safety and Survival, etc. Department-wide RIT training (Fall Fire Skills) was in the planning phase when this incident occurred. It began in September and approximately 75% of the career department is complete. Volunteer participation is extremely low.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
400-26	**Protective Clothing and Equipment**	01/14/2016	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.E.1	The P.A.S.S. device shall be worn continuously while involved in any incident. a. The P.A.S.S. device shall become a part of, and be attached to, the turnout coat when the breathing apparatus is not being worn. b. When your assigned equipment is released from the incident, then, and only then, will your P.A.S.S. device will be deactivated and returned to the riding position of the apparatus.	The P.A.S.S. is integrated into the MSA G1 SCBA. Stand-alone P.A.S.S. devices are not maintained on apparatus. Crews involved in the MAYDAY and interior operations were wearing their SCBA and there were no issues noted with the integrated P.A.S.S.
Section 3.B	It is the policy of the Baltimore County Fire Department to provide adequate protective clothing and related equipment to all of its members. It is the responsibility of each member and their immediate supervisor to ensure that such clothing and equipment are used at all times while operating at emergency incidents, training exercises, and any other time where its use will enhance the safety and well-being of fire department personnel. a. All fire department personnel regardless of assignment, duty or location shall be required to wear a helmet with chinstrap in place at all times while operating at fire, rescue or haz-mat incidents.	All members operating in the interior IDLH during this incident were wearing SCBA as prescribed. It was noted that several members operating in close proximity to points of egress and other openings were wearing SCBA but were not masked up, or were not wearing SCBA at all.

Section 7	Formal gear inspection utilizing the Form #35 shall be conducted twice per year, in January and July. The January inspection is conducted by the Battalion/Division Chief while the July inspection is conducted by the Captain. Inspection report form #35 will be stored at the member's station for one year. Any defects found during the inspection will be repaired or replaced in a timely manner.	Records indicate that the MAYDAY member completed a Form 35 on July 15, 2022 and signed it himself. A captain did not perform the July inspection as required by SOP and there was no entry for January. Further, it was discovered that the member's drag rescue device (DRD) was not in place at the time of the incident.

GENERAL ASSESSMENT

OUTDATED SOP AND PARTIAL COMPLIANCE

The SOP references obsolete/unsupported P.A.S.S. devices and does not account for the issue of a second set of turnout gear. The bi-annual PPE inspection process is unreliable and does not require a different officer to complete the inspection of the captain's PPE. The Officer Development Program includes a segment on conducting a proper PPE inspection presented by our Health & Safety Bureau, however there is no recurrent training provided to those responsible for conducting inspections.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
400-27A	**Respiratory Protection Program**	**05/09/2018**	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 4.A.1	All members shall use respiratory protection when they may be exposed, or potentially exposed, to respiratory hazards that are an IDLH.	All members who operated within the IDLH on this incident were wearing SCBA.
Section 4.A.3	All members who are or could be exposed to IDLH atmospheres during fire suppression operations and/or training exercises shall use SCBA. This includes, but not limited to: a. All interior structural firefighting operations b. Interior and/or exterior exposure to smoke or other products of combustion.	All members operating in the interior IDLH during this incident were wearing SCBA as prescribed. It was noted that several members operating in close proximity to points of egress and other openings were wearing SCBA but were not masked up or were not wearing SCBA at all.
Section 4.A.5	Members operating in the vicinity of known or potential IDLH atmospheres, who may be required to enter the IDLH area, shall wear SCBA or have SCBA or SAR available for immediate donning and use.	All members who operated within the IDLH on this incident were wearing SCBA.
Section 4.B.4	Members must qualify annually to use air purifying respirators. Qualification requires: a. Annual refresher training b. Fit test c. Demonstration of proficiency	Fit testing is conducted annually. Annual SCBA refresher training and demonstration of proficiency is not addressed in SOP #400-14.

Section 8.B	Each member who is authorized to use SCBA or other respirators shall participate in an annual refresher training and re-qualification program. The refresher training shall ensure the member is able to meet the objectives listed for initial training and provide any new information that is required. Each member will also demonstrate the same skills as required for initial training program.	Annual SCBA refresher training and re-qualification is not addressed in SOP #400-14. Current policy does not require the documentation of SCBA training exclusively. 2023 Fall Fire Skills training focuses on RIT and includes the use of SCBA by all participants.
Section 9.3.A	Respirator inspections shall follow the manufacturer's recommended procedures. Regular user inspections of SCBA shall include verification that: a. The air cylinder is full. Cylinders shall be refilled if the pressure is found to be below 90% of the rated capacity (4050 psi for a 4500 psi SCBA).	The After Action Review Team was unable to verify that all SCBA cylinders used in this incident were filled to 4050 psi or above.
Section 9.C	Each SCBA unit shall be thoroughly inspected and flow tested annually by a qualified technician, following the manufacturer's recommended procedures. Also, units shall be flow tested after major maintenance or repairs are conducted and before being returned to service.	All SCBA used on this incident had undergone their annual inspection and flow test by the BA shop.

GENERAL ASSESSMENT

SOP IN NEED OF REVISION AND PARTIAL COMPLIANCE

The requirements outlined in our department's Respiratory Protection Program are aligned with OSHA Standard 1910.134 (Respiratory Protection). Members operating within the IDLH wore and used their SCBA as prescribed by the SOP, however several other members operated on the exterior near openings that were emitting smoke without the use of respiratory protection. Initial respirator (SCBA) training is a heavy concentration in recruit training programs; however, department-wide annual refresher training is inconsistent, undocumented, and altogether lacking. The department does a good job of facilitating annual SCBA fit-testing and flow testing by manufacturer trained and qualified technicians.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
400-27B	Breathing Apparatus and Air Units	01/14/2016	

REFERENCE	EXPECTED ACTIONS	ACTUAL ACTIONS
Section 1.A.1	Utilization of Breathing Apparatus in Untenable Atmospheres 1. All personnel shall wear breathing apparatus when there is possible exposure to chemicals and during interior fire extinguishment/overhaul operations and when otherwise directed by the Safety Officer, in conjunction with the incident commander.	All members operating in the interior IDLH during this incident were wearing SCBA as prescribed. It was noted that several members operating in close proximity to points of egress and other openings were wearing SCBA but were not masked up, or were not wearing SCBA at all.
Section 1.B	The officer-in-charge of each unit will ensure that a visual inspection and functional test are performed on all breathing apparatus is inspected at the beginning of each shift.	While it is normal practice for career members to perform a visual and functional test of the SCBA assigned to their riding position at the start of the shift, it is unclear if this check was performed on the SCBA on all apparatus that responded to the incident.

GENERAL ASSESSMENT

SOP IN NEED OF REVISION AND PARTIAL COMPLIANCE

The SOP includes detailed instructions on the performance of the visual and functional SCBA check and includes the MSA G-1 SCBA Operating Manual in it's entirety. The department has conducted thorough research on the use of Bluetooth technology to fully embrace the importance and benefit of clear communications on the fireground. Bluetooth best practices, to include visual inspection, functional testing, and donning of the face piece is not included in the SOP. The department's three (3) new air units, placed in-service within the last year, are also not addressed. As previously stated, members operating within the IDLH wore and used their SCBA as prescribed by the SOP, however several other members operated on the exterior near openings that were emitting smoke without the use of respiratory protection.

SOP NUMBER	TITLE	REVISION DATE	QR CODE
Personnel 21	**Health and Safety Officer**	**06/05/2003**	
Section 2.A	At any incident, the command structure shall be utilized to effectively address and rectify any situation or activity that may be judged unsafe or involve an immediate hazard. In conjunction with the incident commander, the Safety Officer shall have the authority to alter, suspend or terminate those activities.	The appointed safety officer altered the activities of those members attempting to enter the structure during the MAYDAY in an attempt to curb freelancing.	
Section 2.B	Department personnel receiving instructions from the Safety Officer shall act immediately to take appropriate action to correct any unsafe or hazardous condition that may cause personal injury or damage to equipment.	All personnel on the fireground took appropriate action to correct unsafe or hazardous conditions when identified.	
Section 2.C	On all rescues and on multiple company incidents where SCBA is in use and/or more than one hand line is deployed the incident commander shall designate an Incident Safety Officer. The designated Safety Officer shall assist the incident commander with overall scene safety, with primary responsibilities being those identified in S.O.P. Tactical #6. It is the responsibility of every Officer to continuously monitor and enforce all safety precautions for the protection of their personnel and equipment.	The initial incident commander retained the role of the safety officer. When the acting battalion chief arrived, he appointed the initial company OIC as the safety officer; that officer elected to deploy with his crew. FMO-2 was later appointed the safety officer.	

GENERAL ASSESSMENT

OUTDATED SOP AND PARTIAL COMPLIANCE

This SOP is over twenty years old. While many concepts in this SOP are still valid, there are a number of practices and roles which have changed and need to be updated.

APPENDIX A—TRANSCRIBED RADIO TRANSMISSIONS

GENERAL INFORMATION

Every effort has been made to ensure that the information contained herein is as accurate as possible. Please note the following items, which are used throughout the transcriptions:

Alert 1 - This indicates the "Alert 1" tone was sounded prior to the transmission which follows. The "Alert 1" tone consists of a steady monotone which typically precedes the dispatching of local alarm assignments.

Alert 2 - This indicates the "Alert 2" tone was sounded prior to the transmission which follows. The "Alert 2" tone consists of an alternating bi-level tone which typically precedes the dispatching of box alarm assignments.

Alert 3 - This indicates the "Alert 3" tone was sounded prior to the transmission which follows. The "Alert 3" tone consists of an intermittent monotone which typically precedes an informational message to all units.

Unit Identifiers - The unit identifier indicates the unit and radio designation of the individual making the transmission. "E19-M" indicates the radio onboard E19's fire engine; "T18-P1" indicates the portable radio assigned to the OIC on T18. For a full description of radio designations, please refer to the terminology section at the beginning of this report.

No Audio - Indicates that the radio push-to-talk keyed up but did not make a verbal transmission.

[Bracketed Text] - Was not spoken over the air, but is included for contextual reference.

Inaudible - Refers to verbal transmissions that can not be discerned. In most cases, this pertains to a portion of the transmission, but may apply to the entire transmission, where indicated.

Channel Marker - Refers to the audible channel marker, a brief tone which is emitted by the dispatch console, when activated by the dispatcher, to alert all users that the channel is command-restricted and only transmissions which are absolutely necessary to the operation at hand are to be made.

Please note that transmissions are only included from the connect time of 911 up until 23:00 . The incident continued past this timeframe, however the operations conducted were without incident and outside of the scope of this After Action Review.

TALKGROUP 1 (MAIN DISPATCH)

Key Up Time	Radio Designation	Duration	Transmission
21:33:04	E16-M	0:00:02	E16 in station.
21:33:08	FD-01	0:00:03	E16, 21:33.
21:37:00	FD-01	0:00:02	*Alert 1*
21:37:03	FD-01	0:00:13	Alert Medical Box 6-7. E61, A58, EMS3 Unconscious Subject. Yorkway and Willow Spring Rd. Respond on East, 21:37.
21:37:32	E71-M	0:00:03	E71 first due.
21:37:35	FD-01	0:00:03	E71, 21:37.
21:37:51	E56-MO	0:00:02	E56 available.
21:38:00	FD-01	0:00:02	*Alert 1*
21:38:04	FD-01	0:00:13	Alert Local Box 11-10. E11 first responder for M17, Trouble Breathing. 1817 Forrest Rd. between Wentworth Rd. and Perring Terrace. Respond on Central, 21:38.
21:38:41	FD-01	0:00:01	E9 from dispatch.
21:38:44	E9-M	0:00:01	First due.
21:38:46	FD-01	0:00:01	Okay, prepare to copy.
21:39:03	FD-01	0:00:02	*Alert 1*
21:39:06	FD-01	0:00:16	Alert Local Box 26-7. E261, E9 first responders, M12 for a Fall. 2505 Eugene Ave. between Maple Rd. and Sparrows Point Blvd. Respond on East. E9?
21:39:23	E9-M	0:00:01	Enroute.
21:39:25	FD-01	0:00:02	E9, 21:39.
21:41:06	FD-01	0:00:02	*Alert 11*
21:41:09	FD-01	0:00:02	Alert Local Box 5-12.
21:41:12	FD-01	0:00:16	E5, Howard M1-5, Emotionally Ill/Violent. 5656 Braxfield Rd. between Downton Rd. and Grovehill Rd. Respond on West, 21:41.
21:41:34	FD-06	0:00:01	*No Audio*
21:41:35	FD-06	0:00:07	Alert A103, respond Box 3-4 for Choking. 2303 Lawnwood Cir, cross street of Malus Ct. in Wilmont Dr. Respond on West, 21:41.
21:41:47	E2-M	0:00:01	E2 is available.
21:41:56	T18-M	0:00:01	T18 is available.
21:42:05	FD-06	0:00:02	E2, T18, 21:42.
21:42:32	T13-M	0:00:02	T13 is available.
21:42:36	FD-06	0:00:02	T13, 21:42.
21:43:07	FD-06	0:00:08	Alert A515 respond box 26-7 for a Fall Injury. 2505 Eugene Ave. cross street Maple Rd. and Sparrows Point Blvd. Respond on East, 21:43.
21:43:48	FD-01	0:00:03	T18 from Dispatch.
21:44:01	FD-01	0:00:03	*Alert 2*
21:44:05	FD-01	0:00:06	Alert Fire Box 56-4, Reisterstown Rd. and East Cherry Hill Rd.

ADO TALKGROUP

Key Up Time	Radio Designation	Duration	Transmission
21:36:22	FDL	0:00:05	ADO, BC2. Advanced Auto Parts, 56-4
21:36:29	BC2-P1	0:00:02	Copy, thanks.
21:36:53	FDL	0:00:01	*No Audio*
21:37:04	FDL	0:00:04	It's going to be multiple calls, they gotta get these EMS calls out first.
21:37:13	BC2-P1	0:00:03	Okay.
21:37:49	BC2-P1	0:00:03	Can you give me the address to there?
21:37:56	FDL	0:00:04	They're just saying Reisterstown Rd. at Cherry Hill Rd.
21:38:01	BC2-P1	0:00:02	Got it. I know where that is, thanks.

TALKGROUP 22 (PRIMARY TACTICAL/FIREGROUND CHANNEL)

Key Up Time	Radio Designation	Duration	Transmission
21:40:34	E56-M	0:00:03	E56 is on 22. Do I have a dispatcher yet?
21:40:38	FD-07	0:00:04	E56 I am on the TAC channel, I got you. You're requesting a work?
21:40:43	E56-M	0:00:17	That's correct. I have a one-story commercial building. We laid a line out from Reisterstown Rd. We are on Side Alpha. It's approximately a 200 x 400 building. I have significant smoke; we are going to go ahead and force the door and stretching a line.
21:41:01	FD-07	0:00:01	Okay direct.
21:41:03	M56-M	0:00:02	Medic 56 arrived.
21:41:07	FD-07	0:00:02	Medic 56 arrived 21:41.
21:41:50	M56-P2	0:00:04	Medic to Engine 56 hydrant's hooked, let me know when you're ready for water.
21:41:54	E56-P4	0:00:01	Hold tight on that.
21:42:58	E56-P4	0:00:03	E56 to E19.
21:43:08	FD-07	0:00:01	*No Audio*
21:43:08	E56-P1	0:00:08	Dispatch 56, officer on 56 will have command. I'll retain safety until we get some more personnel here.
21:43:09	FD-07	0:00:01	*No Audio*
21:43:15	E56-P1	0:00:01	*No Audio*
21:43:17	FD-07	0:00:04	Okay, E56 with command, you advise E19 is on scene as well?
21:43:22	E56-P1	0:00:05	I don't see 19 - the only unit I got here is Medic 56.
21:43:27	FD-07	0:00:02	Okay I'm direct 21:43.
21:43:33	T18-M	0:00:03	Dispatch, Truck 18 is enroute, can I have the address please?
21:43:36	FD-07	0:00:05	Truck 18, I have you enroute. It's Reisterstown Rd and East Cherry Hill Rd. at the Advanced Auto Parts.
21:43:45	E56-P4	0:00:08	56 Mobile to Truck 18. Bobby, I need you guys to come in the side entrance off of Cherry Hill Rd.
21:43:55	T18-M	0:00:01	Copy.
21:44:07	E56-P4	0:00:06	56 Mobile to Dispatch. You got any other fire engines on the street?
21:44:13	FD-07	0:00:03	They're coming on now, we're just putting them out now.
21:44:16	FD-07	0:00:02	We had a lot of medical calls pop up.
21:44:19	E56-P1	0:00:03	Dispatch, Command, second alarm.
21:44:22	FD-07	0:00:03	Ok, requesting second alarm 21:44.
21:44:37	E56-P1	0:00:08	Also, we have a Bravo exposure, it's going to be a Bank of America. It does not appear that it extended into the Bravo exposure yet.
21:44:43	FD-07	0:00:01	*No Audio*
21:44:46	FD-07	0:00:02	Okay, direct 21:44.
21:44:49	E413-M	0:00:01	E413 enroute.
21:44:53	FD-07	0:00:02	E413 enroute.
21:44:56	E56-P4	0:00:12	56 Mobile to E413. I need you to come in past the entrance to where the vacant gas station is- between them and the old Burger King- and cover my plug.
21:45:10	BC2-M	0:00:03	Battalion 2 enroute.
21:45:16	E413-M	0:00:03	56, 413 repeat that please.
21:45:16	FD-07	0:00:02	Battalion Chief 2 I have you enroute.

Key Up Time	Radio Designation	Duration	Transmission
21:45:20	E56-P4	0:00:09	The hydrant past the main entrance heading towards Franklin Blvd. That side entrance- past where the old Burger King was at the Starbucks.
21:45:32	E413-M	0:00:01	Direct.
21:45:47	BC2-M	0:00:04	Dispatch - Battalion 2, you got units on scene?
21:45:50	FD-07	0:00:05	E56, M56 are currently on scene. Truck 18 and E413 are in en-route.
21:45:59	T404-M	0:00:02	Truck 404 is enroute with 4.
21:46:03	FD-07	0:00:02	Truck 404 with 4, 21:46.
21:46:06	S414-M	0:00:02	Squad 414 with 2.
21:46:10	FD-07	0:00:03	Squad 414, I have you enroute with 2.
21:46:18	BC2-M	0:00:04	Alright I didn't hear his BIR, what do they got showing?
21:46:22	FD-07	0:00:06	Smoke showing, possible spread into Bravo side, they did request a second alarm.
21:46:30	E56-P1	0:00:18	Chief from 56, I have a 400 by 200, 1 story commercial. We have heavy, heavy smoke coming out of it. It has not extended into the Bravo exposure. We have a line in place and a 2-1/2, we just want some more personnel here before we go too deep into this thing.
21:46:49	BC2-M	0:00:03	Copy that, start the Hazmat too.
21:47:00	E19-M	0:00:01	*No Audio*
21:47:02	BC2-M	0:00:03	You said auto parts store, right?
21:47:06	E56-P1	0:00:03	That's correct, it's Advance Auto.
21:47:11	E56-P1	0:00:04	We're attempting to find the seat of the fire right now.
21:47:16	E413-M	0:00:01	413's arrived.
21:47:18	FD-07	0:00:01	Engine 413 arrived.
21:47:19	E19-M	0:00:01	E19's enroute.
21:47:23	FD-07	0:00:01	E19 —
21:47:40	M19-P1	0:00:02	Medic 56 enroute. [M19 mistakenly calls enroute as M56]
21:47:44	FD-07	0:00:03	Medic 19 enroute 21:47. [The dispatcher corrects based on the key-up]
21:47:48	E503-M	0:00:03	ET503 is enroute with 6.
21:47:52	FD-07	0:00:02	E503 enroute with 6.
21:48:01	BC2-M	0:00:03	Battalion 2 has arrived.
21:48:04	FD-07	0:00:01	Battalion Chief 2 arrived.
21:48:14	S414-M	0:00:02	Squad 414 arrived.
21:48:16	FD-07	0:00:02	Squad 414 arrived.
21:48:26	FD-07	0:00:01	*No Audio*
21:48:27	BC2-M	0:00:06	Dispatch, Battalion 2, I'm going to be assuming command, you can make the officer of 56 Side Charlie, okay?
21:48:28	FD-07	0:00:01	Engine-
21:48:31	FD-07	0:00:01	Okay, Battalion Chief-
21:48:35	FD-07	0:00:06	E56, Side Charlie. Battalion Chief 2 Command; also, be advised I'm going to make E19 our RIT engine.
21:48:44	E56-P1	0:00:05	Dispatch - Command, did you copy 412 is going to go to Side Charlie?
21:48:48	FD-07	0:00:02	412 - Side Charlie

Key Up Time	Radio Designation	Duration	Transmission
21:48:52	E19-M	0:00:01	*Inaudible*
21:48:54	FD-07	0:00:02	E19 direct on RIT 21:48.
21:49:00	BC2-M	0:00:07	Alright 412 - Side Charlie. You can make officer of 56 Safety.
21:49:08	FD-07	0:00:02	Okay E56 officer - Safety.
21:49:10	T18-M	0:00:02	Truck 18's arrived Alpha Side.
21:49:14	FD-07	0:00:01	Truck 18, 21:49.
21:49:31	E56-P1	0:00:03	Battalion 2 from 56 are you here?
21:49:35	BC2-M	0:00:03	Yeah, I'm taking command, you're Safety now.
21:49:43	BC2-M	0:00:08	Dispatch from command, I wanted to confirm the request for the second alarm and also the Hazmat.
21:49:51	FD-07	0:00:03	That's correct, they are putting together the second alarm now and Hazmat.
21:50:08	FD-07	0:00:01	Command from Dispatch?
21:50:14	E56-P4	0:00:03	404 you're not going to make that, go in Cherry Hill.
21:50:20	E413-P1	0:00:08	Command from 413, send somebody down here by the Rite Aid or CVS-- whatever that is-- have them come in the Charlie Side.
21:50:29	BC2-P1	0:00:07	Command's okay. Unit near the CVS, do you copy that?
21:50:39	E56-P4	0:00:06	Command, that should be 404 coming in off of Hillfield from Cherry Hill, they should be able to get side Charlie.
21:50:49	BC2-P1	0:00:03	Copy 404 *inaudible*.
21:50:56	T404-M	0:00:02	T404's arrived Side Charlie.
21:51:02	FD-07	0:00:02	T404 arrived Side Charlie.
21:51:08	FD-07	0:00:01	*Inaudible*
21:51:08	E413-P1	0:00:04	413 to 404, do not force any doors!
21:51:14	T404-M	0:00:01	404's okay.
21:51:42	E18-P1	0:00:01	*No Audio*
21:51:44	E413-P1	0:00:02	Command from 413.
21:51:56	E413-P1	0:00:03	Command from 413.
21:52:01	BC2-M	0:00:02	Command.
21:52:04	E413-P1	0:00:08	Alright, I got the door forced. I'm getting ready to open the door, I'll advise on conditions *inaudible*.
21:52:14	E19-M	0:00:01	E19 arrived.
21:52:17	BC2-M	0:00:03	I didn't copy any of that.
21:52:21	E413-P1	0:00:08	I got the door forced here on Charlie. I'm getting ready to open it, let me know- are you ready to open it?
21:52:33	BC2-M	0:00:05	Door's forced on Charlie, copy.
21:52:40	T18-P1	0:00:02	Command from T18.
21:52:44	BC2-M	0:00:01	Go ahead.
21:52:46	T18-P1	0:00:09	I've made my way to the Alpha-Delta corner. The heat is getting more intense over this direction.
21:52:58	E413-P1	0:00:03	Command from 413, Emergency!
21:53:04	E413-P1	0:00:09	We've got the door open; I have fire back here. I need a line. You might want to hold up on sending crews through Alpha.
21:53:16	BC2-M	0:00:05	Is that company from 41 talking, side Charlie? Needs a line?

Key Up Time	Radio Designation	Duration	Transmission
21:53:23	E56-P4	0:00:05	Yeah, I think they need a line. Bradley, can I get that 500 down this, Delta Side?
21:53:29	E413-P1	0:00:02	That's correct.
21:53:31	E18-P4	0:00:04	18, I can get a 500 from the Bank of America Side.
21:53:40	E413-P1	0:00:10	18 from 413 if you're on the Delta Side--on the Charlie-Delta--correction Bravo-Charlie corner, bring me the deuce-and-a-half.
21:53:52	BC2-M	0:00:04	Bravo-Charlie, need a deuce and a half, copy.
21:53:57	E413-P1	0:00:06	I'm on the Charlie-Delta corner, but if you can reach me with the deuce-and-a-half, that would be best.
21:54:11	BC2-M	0:00:06	E2 from command, can you handle that?
21:54:28	E56-P4	0:00:04	413- Bradley, you ready to let this water go in the 500?
21:54:33	E413-P1	0:00:01	Send it.
21:54:36	E56-P4	0:00:01	Received.
21:54:40	BC2-M	0:00:03	E2 from command.
21:54:45	E2-P1	0:00:02	E2 go ahead.
21:54:48	BC2-M	0:00:07	You copy 41's message they want a two-and-a-half, Side Charlie-Delta can you handle that?
21:54:57	E2-P1	0:00:02	We'll take care of it.
21:55:02	E56-P1	0:00:03	*No Audio*
21:55:06	T404-P1	0:00:02	404 officer to command.
21:55:10	BC2-M	0:00:01	Go ahead.
21:55:13	E56-P4	0:00:02	Hey Charlie, here comes your 500.
21:55:17	T404-P1	0:00:04	Be advised we now have two inch-and-three-quarter lines to side Charlie.
21:55:24	BC2-M	0:00:02	2 lines, Side Charlie copy.
21:55:29	E18-P1	0:00:03	Command from 18 we got one of those lines to Charlie.
21:55:36	E56-P4	0:00:11	E56 Mobile, we got an inch-and-three-quarter through the front door, the deuce-and-a-half sitting at the front door, and the 500 inch-and-three-quarter stretched to side Charlie. The only handlines we got in play right now.
21:55:48	E18-P4	0:00:03	*No Audio*
21:56:30	M102-M	0:00:02	A102's enroute.
21:56:33	FD-07	0:00:01	Ambo 102.
21:56:33	E18-P4	0:00:04	Command from 18 Mobile.
21:56:38	BC2-M	0:00:01	Go ahead.
21:56:40	E18-P4	0:00:07	I need an engine to cover my plug off of Cherry Hill, the back entrance. I got a 500 in service for the rear.
21:56:49	BC2-M	0:00:06	Alright I hear an engine coming now. Dispatch from command, what unit do I have enroute?
21:56:59	E412-M	0:00:02	E412 has arrived.

Key Up Time	Radio Designation	Duration	Transmission
21:56:59	FD-07	0:00:01	Okay, you have--
21:57:02	FD-07	0:00:03	E412, I have you arrived.
21:57:04	E413-P1	0:00:02	Command from 413.
21:57:07	BC2-M	0:00:07	412, Engine from 41 that just arrived go cover that plug that 18 asked for.
21:57:15	E412-M	0:00:02	Copy, where was that?
21:57:18	E18-P4	0:00:03	Cherry Hill side, back entrance.
21:57:22	E412-M	0:00:01	Copy.
21:57:27	E18-P4	0:00:05	Dispatch-- Don't go to Cranfield.
21:57:33	UNKNOWN	0:00:03	*No Audio*
21:57:37	UNKNOWN	0:00:03	*No Audio*
21:57:41	E413-P1	0:00:02	Command from 413.
21:57:45	BC2-P1	0:00:01	Command.
21:57:49	E413-P1	0:00:15	Tried to make a push in the Charlie – Delta corner, we are burning up. We had to back out <inaudible>. We have a heavy amount of smoke pumping out of Charlie right now.
21:58:04	BC2-P1	0:00:07	413 making a push, backing out, too hot, copy that. You need the roof opened up?
21:58:12	E413-P1	0:00:11	Yeah. It looks like the fire is all above us. I'm not sure if there's an attic space or a cockloft-- maybe-- but we have fire above us.
21:58:25	BC2-P1	0:00:04	T18 open that roof as quick as you can.
21:58:30	E56-P4	0:00:07	Sounds like they're working on it boss, I can hear them. Do we have any other engine companies I can help get this deuce-and-a-half stretched to the rear?
21:58:40	E18-P4	0:00:04	Hey Jimmy I got access here, I don't know what side you need it, I got mine too.
21:58:45	E56-P4	0:00:08	Alright. They want the Charlie-Delta Bobby and that's on this side, so we're going to try to stretch E56's and get that back there.
21:58:55	E56-P1	0:00:09	Command from E56. Whoever is on the roof, they need to go closer to side Charlie where the fire is.
21:59:11	FD-07	0:00:01	Engine--
21:59:11	E56-P4	0:00:04	captain from E2, let me know when you have enough and you want that line charged.
21:59:26	E3-M	0:00:02	Command from E3.
21:59:29	E3-M	0:00:04	We're laying in from Cherry Hill and Lindellen.
21:59:36	BC2-P1	0:00:07	Okay E3, after you do that report to side Alpha, we got a line waiting there for you, side Alpha.
21:59:45	E3-M	0:00:01	Received.
21:59:47	E18-P4	0:00:03	3, you're not going to make it.
21:59:52	E503-P1	0:00:05	18, water's on the way to you from the hydrant on the Charlie side, water's on the way.
22:00:12	E13-P1	0:00:03	E13's arrived on 3's hydrant.

Key Up Time	Radio Designation	Duration	Transmission
22:00:25	FD-07	0:00:01	E13 arrived.
22:00:28	FD-07	0:00:02	Battalion Chief 33 are you on this channel?
22:00:35	E13-P1	0:00:02	*No Audio*
22:00:39	BC2-P1	0:00:06	Dispatch from command, Fire Marshal 2 is going to be assuming Safety.
22:00:47	FD-07	0:00:02	Okay Fire Marshal 2 – Safety.
22:00:50	T18-P1	0:00:03	Command from T18.
22:00:55	E503-P1	0:00:02	Command from 503.
22:00:59	T18-P1	0:00:03	Command from T18 URGENT.
22:01:14	E18-P1	0:00:01	Command from E18.
22:01:17	BC2-P1	0:00:01	Command.
22:01:20	Unknown	0:00:01	*No Audio*
22:01:21	E18-P1	0:00:30	Alright, I'm on side Charlie, we got an inch-and-three-quarter at the top step, Charlie side, flowing into the structure from the stairwell landing. We are unable to make entry. I got a crew going in, which I guess is the first floor, which is side Delta of the bump out on the back side. I got an inch-and-three-quarter going in there, trying to find the seat of the fire.
22:01:52	T18-P1	0:00:02	Command from T18 URGENT.
22:01:57	BC2-P1	0:00:04	Okay I copy that, that's E18 Capt. Brinkley, right?
22:02:01	T18-P1	0:00:04	T18 to Dispatch.
22:02:07	FD-07	0:00:01	T18?
22:02:09	T18-P1	0:00:05	Advise command *inaudible* I need some help here
22:02:16	FD-07	0:00:02	Can you repeat, T18?
22:02:19	T18-P1	0:00:03	MAYDAY, MAYDAY, MAYDAY.
22:02:24	BC2-P1	0:00:03	Dispatch it's a MAYDAY hold all air.
22:02:29	FD-07	0:00:02	*Alert 3*
22:02:31	FD-07	0:00:05	Attention all units we're issuing a MAYDAY on this TAC channel. All units hold your--
22:02:38	FD-07	0:00:01	*No Audio*
22:02:45	BC2-P1	0:00:08	Dispatch T18 had a MAYDAY, Dispatch T18 had a MAYDAY. Go ahead T18. Dispatch, give me the third alarm.
22:02:53	FD-07	0:00:01	Okay, third alarm.
22:02:54	T18-P1	0:00:09	I am stuck in the store room; I had a ceiling fall on me. I'm disoriented and I can't find my way out.
22:03:08	Unknown	0:00:03	*No Audio*
22:03:08	FD-07	0:00:02	Command did you copy any of that?
22:03:13	BC2-P1	0:00:01	I did not
22:03:15	FD-07	0:00:01	T18, can you repeat?

Key Up Time	Radio Designation	Duration	Transmission
22:03:20	E19-P1	0:00:08	RIT to Dispatch. They said they are up in a store room, and the ceiling fell on them, second level.
22:03:31	FD-07	0:00:03	Okay Command are you direct up in the store room, Level 2, ceiling fell.
22:03:35	BC2-P1	0:00:06	I copy that, RIT's deploying. E19 RIT's deploying.
22:03:41	FD-07	0:00:01	E19 - RIT's deploying
22:03:41	T18-P1	0:00:13	Negative. Negative Negative. I'm on the first floor, I came in the Alpha Side I had a ceiling *inaudible* fall on me. Now I cannot find my way back out.
22:03:59	FD-07	0:00:02	Okay T18 you said first floor Alpha side now?
22:04:05	T18-P1	0:00:04	Alpha side is where I came in at, yes.
22:04:10	FD-07	0:00:02	Okay Command and RIT are you direct? First floor, Alpha side.
22:04:14	BC2-P1	0:00:03	Command's correct on that. RIT direct?
22:04:20	DFM2-P1	0:00:02	Command from Safety?
22:04:23	BC2-P1	0:00:08	Standby, Reese you're RIT now, Reese is RIT. Go ahead Safety.
22:04:32	DFM2-P1	0:00:18	E56 exited Alpha side, I have the engine-- captain from Engine 19 and a crew from E3 and T18 going in and 1 from 19, Alpha side.
22:04:51	BC2-P1	0:00:07	Copy that. 19, 3, making entry, Alpha side. E56 out.
22:05:02	DFM2-P1	0:00:01	*No Audio*
22:05:09	E19-P1	0:00:06	T18 from E19 can you sound your PASS alarm?
22:05:25	SAFE1-P	0:00:03	Command from Safety 1, give me the channel marker please.
22:05:34	FD-07	0:00:01	*Channel Marker*
22:05:34	FD-07	0:00:01	*No Audio*
22:05:34	BC2-P1	0:00:06	Truck 18 did you copy that, sound your PASS device, sound your PASS device T18.
22:05:41	E19-P1	0:00:05	E19 from-- Command from E19, I have the member from T18.
22:05:47	BC2-P1	0:00:08	Copy that. Dispatch do you copy? Member from T18's been located. You bringing him out Alpha side, E19?
22:05:52	FD-07	0:00:02	Member from T18 located.
22:05:56	E19-P1	0:00:01	Yeah, we're coming out now.
22:06:00	BC2-P1	0:00:04	Okay let me know when you're out, we'll open the talk group back up.
22:06:08	FD-07	0:00:02	E19 got the member from T18 correct?
22:06:12	BC2-P1	0:00:05	Yeah, they got the member from T18 and they're coming back out Alpha side now.
22:06:17	FD-07	0:00:01	Okay Direct 22:06.
22:06:18	DFM2-P1	0:00:09	Command from Safety, I recommend an evacuation once they come out, I'll confirm shortly. I still have heavy smoke conditions in Alpha.
22:06:33	DC3-P1	0:00:01	*No Audio*
22:06:34	BC2-P1	0:00:12	Okay I receive. Dispatch from Command, once they're out with the member from T18, we're going to evacuate. We're going to do a PAR. We're going to regroup.

Key Up Time	Radio Designation	Duration	Transmission
22:06:47	FD-07	0:00:06	Okay direct, and once you get eyes on him can you let me know his situation and if you need air started?
22:06:54	FD-07	0:00:01	*Channel Marker*
22:06:57	E19-P1	0:00:08	Command from E19. Can you have them the hit the air horn so we can find the front?
22:07:13	DC3-P1	0:00:13	Dispatch from Deputy Chief 3, I've arrived. I'm assuming command, go ahead and sound the alert for everyone to back out and evacuate the building.
22:07:30	FD-07	0:00:02	*ALERT 2*
22:07:31	FD-07	0:00:06	All units Fire Box 56-4, evacuate the building, evacuate the building.
22:07:38	DC3-P1	0:00:06	All units from command, we're going to be doing a PAR, just remove yourselves from the building.
22:07:53	E19-P1	0:00:05	Command from E19, did you copy my message to sound the air horns?
22:07:59	SAFE1-P1	0:00:03	Command, Safety 1 I got that.
22:08:03	E13-P1	0:00:01	*No Audio*
22:08:14	FD-07	0:00:01	*Channel Marker*
22:08:17	SAFE1-P1	0:00:03	RIT from Safety 1, you copy that? You hear it?
22:08:24	FD-07	0:00:01	*Channel Marker*
22:08:29	CCE91	0:00:02	9-1 to E2, you ready for water?
22:08:33	FD-07	0:00:02	Carroll unit please switch to TAC23.
22:08:44	FD-07	0:00:01	*Channel Marker*
22:08:44	BC2-P1	0:00:06	Command, E3 Alpha, hold all air horns, stop air horns.
22:08:54	FD-07	0:00:01	*Channel Marker*
22:08:54	FD-07	0:00:02	E19 from Dispatch?
22:08:55	DFM2-P1	0:00:03	*No Audio*
22:09:01	E19-P1	0:00:02	Yeah, go ahead?
22:09:03	FD-07	0:00:02	Just confirming you heard the air horn?
22:09:06	E19-P1	0:00:02	I couldn't hear it from where we were.
22:09:09	FD-07	0:00:02	Okay, the air horn has been sounded.
22:09:14	FD-07	0:00:01	*Channel Marker*
22:09:18	DFM2-P1	0:00:06	E19, are you coming out Alpha-- where you entered?
22:09:28	E19-P1	0:00:03	That's the idea, but I haven't found it yet.
22:09:34	FD-07	0:00:01	*Channel Marker*
22:09:40	DC3-M	0:00:03	T18 from command are you PAR?
22:09:44	FD-07	0:00:01	*Channel Marker*
22:09:54	FD-07	0:00:01	*Channel Marker*
22:09:54	FD-07	0:00:01	*No Audio*
22:09:54	E19-P1	0:00:06	E19 to command you're going to have to send somebody in to find us.

Key Up Time	Radio Designation	Duration	Transmission
22:10:02	BC2-P1	0:00:04	2 from T18 are coming in now, 2 from T18 coming in now.
22:10:09	E19-P1	0:00:02	We'll be hooking up to buddy breathing.
22:10:13	E18-P4	0:00:02	*Inaudible*
22:10:16	DC3-M	0:00:05	All units from command, we're going to be doing a PAR. T18 from command are you PAR?
22:10:24	FD-07	0:00:01	*Channel Marker*
22:10:24	E18-P4	0:00:04	Shut the saws off, shut the saws off.
22:10:33	BC2-P1	0:00:05	Command from Alpha, they're not PAR. They're still trying to find their way out.
22:10:40	E3-P2	0:00:02	Shut down the saw!
22:10:44	FD-07	0:00:01	*Channel Marker*
22:10:45	FD-07	0:00:01	*No Audio*
22:10:45	SAFE1-P1	0:00:03	Shut down the saw, units shut down the saw.
22:10:51	CCE91	0:00:03	9-1 to 9-2 are you ready for water?
22:10:52	FD-07	0:00:01	*Alert 3*
22:10:54	FD-07	0:00:03	Units shut down the saws, units shut down the saws.
22:11:00	DC3-M	0:00:05	Alpha from command, have you deployed the RIT team, are they still on that?
22:11:06	UNKNOWN	0:00:02	*No Audio*
22:11:08	BC2-P1	0:00:20	RIT team's deployed that was E19. They've located the downed member; he's going to be running out of air. We got T18 going in to assist them to find their way out, and as soon as they find them, I got E3 ready to go in to assist.
22:11:29	DC3-M	0:00:04	Copy that and grab the people in front of you and have another RIT team on standby.
22:11:34	FD-07	0:00:01	*Channel Marker*
22:11:38	SAFE1-P1	0:00:03	E19, can you advise on your air status?
22:11:43	E19-P1	0:00:03	We just hooked up buddy breathing.
22:11:47	SAFE1-P1	0:00:02	Okay, copy that.
22:11:50	FD-07	0:00:02	*Alert 3*
22:11:52	FD-07	0:00:02	All units on FB 56-4--
22:11:53	E19-P1	0:00:02	And I'm a little less than half
22:11:55	FD-07	0:00:06	-- If you are not involved in the rescue operation switch to TAC 23, switch to TAC 23. Time's 22:11.
22:12:02	T18-P1	0:00:02	T18 to RIT.
22:12:10	T18-P1	0:00:03	T18 to RIT.
22:12:14	FD-07	0:00:01	*Channel Marker*
22:12:15	BC2-P1	0:00:05	RIT team sound your PASS, RIT team sound your PASS.
22:12:22	T18-P1	0:00:03	The PASS is going off can you hear it?

Key Up Time	Radio Designation	Duration	Transmission
22:12:27	BC2-P1	0:00:06	I got T18 following a hose line into you. Sound your PASS so they can find you.
22:12:35	E19-P1	0:00:04	Our PASS is sounding, have them sound theirs as well.
22:12:40	BC2-P1	0:00:06	Copy that, everybody's been located. Do you need another air bottle, E3's ready to come in.
22:12:47	E19-P1	0:00:10	No, they haven't been located. I said our PASS alarm is going off, can T18 sound theirs so we can come towards their direction?
22:12:59	BC2-P1	0:00:03	Okay, T18 sound yours.
22:13:04	FD-07	0:00:01	*Channel Marker*
22:13:05	E18-P4	0:00:05	Let's go radio silence for a sec.
22:13:14	FD-07	0:00:01	*Channel Marker*
22:13:23	E19-P1	0:00:01	*No Audio*
22:13:27	E18-P4	0:00:04	T18 we've found them. We're going to make our way *inaudible*
22:13:34	FD-07	0:00:01	*Channel Marker*
22:13:36	E311-M	0:00:03	*No Audio*
22:13:41	E3-P2	0:00:03	FADO Nickoles to FADO Murray, your location?
22:13:45	E311-M	0:00:03	*No Audio*
22:13:48	E311-M	0:00:01	Can you drop a line?
22:13:52	E18-P4	0:00:02	Clear the air!
22:13:55	E18-P4	0:00:10	E18-P4, I've made contact with the lost captain and the *inaudible*
22:14:12	BC2-P1	0:00:02	Did you say you found the lost member?
22:14:14	E18-P4	0:00:03	Yes, start PPV.
22:14:21	BC2-P1	0:00:06	Copy, he's been located, coming back Alpha side, correct?
22:14:28	E18-P4	0:00:02	That's correct
22:14:31	BC2-P1	0:00:03	Okay, do you need any more hands?
22:14:44	FD-07	0:00:01	*Channel Marker*
22:14:54	FD-07	0:00:01	*Channel Marker*
22:14:54	FD-07	0:00:01	*No Audio*
22:14:54	BC2-P1	0:00:07	Murray or Nickoles, Murray or Nickoles, do you need another air bottle? I got E3 waiting for you.
22:15:04	FD-07	0:00:01	*Channel Marker*
22:15:09	E18-P4	0:00:02	*Inaudible*
22:15:13	E18-P4	0:00:04	I have contact. Get PPV started.
22:15:24	FD-07	0:00:01	*Channel Marker*
22:15:29	FD-07	0:00:01	Command from dispatch.
22:15:30	DC3-M	0:00:01	CMD go ahead.
22:15:32	FD-07	0:00:02	They're requesting PPV started.
22:15:35	DC3-M	0:00:05	Alpha from command, can you start PPV for them?

Key Up Time	Radio Designation	Duration	Transmission
22:15:42	BC2-P1	0:00:08	Getting on it now, do you guys want windows taken out? I just don't want to flare this thing up on you.
22:15:52	E18-P4	0:00:03	Get PPV started that's enough.
22:16:01	BC2-P1	0:00:02	Can't copy you.
22:16:04	FD-07	0:00:01	*Channel Marker*
22:16:14	FD-07	0:00:01	*Channel Marker*
22:16:19	E18-P4	0:00:03	Coming out.
22:16:24	FD-07	0:00:01	*Channel Marker*
22:16:24	E18-P4	0:00:02	Have EMS stand by.
22:16:29	DC3-M	0:00:04	Unit go ahead with your message again, just try and take your time.
22:16:34	FD-07	0:00:01	*Channel Marker*
22:16:34	E18-P4	0:00:03	We're 20 feet from the front.
22:16:43	BC2-P1	0:00:03	You're 20 feet from the front?
22:16:47	E18-P4	0:00:04	Yeah, we're making our way. We'll need EMS right away.
22:16:52	DC3-M	0:00:05	Copy that, EMS units on scene, Side Alpha immediately.
22:16:58	M56-P1	0:00:02	56 standing by.
22:17:04	FD-07	0:00:01	*Channel Marker*
22:17:13	UNKNOWN	0:00:03	*No Audio*
22:17:23	DC3-M	0:00:03	Alpha from command, let me know when you get them out.
22:17:28	BC2-P1	0:00:04	Did you just bang on the window guys?
22:17:33	E18-P4	0:00:01	Yeah.
22:17:35	BC2-P1	0:00:03	You want us to take that window?
22:17:44	FD-07	0:00:01	*Channel Marker*
22:17:50	BC2-P1	0:00:02	*Inaudible*
22:17:53	BC2-P1	0:00:10	Command from Alpha, all members out, Command ALPHA, all members are out. We're going to take the front windows out now.
22:18:04	FD-07	0:00:01	*Channel Marker*
22:18:05	DC3-M	0:00:01	*No Audio*
22:18:06	DC3-M	0:00:07	Copy that, all members out including-- just to verify-- the member who was the MAYDAY is out?
22:18:14	FD-07	0:00:01	*Channel Marker*
22:18:15	BC2-P1	0:00:05	MAYDAY member is out, you can go ahead with your PAR.
22:18:21	DC3-M	0:00:04	Direct, so T18 you are PAR correct?
22:18:27	BC2-P1	0:00:05	Yes I am. I've got the lieutenant from T18, let me find the rest.
22:18:34	FD-07	0:00:01	*Channel Marker*
22:18:38	DC3-M	0:00:03	E56, are you PAR?

Key Up Time	Radio Designation	Duration	Transmission
22:18:44	FD-07	0:00:01	*Channel Marker*
22:18:51	DC3-M	0:00:05	E56 from command, E56 from command, are you PAR?
22:18:57	E56-P1	0:00:01	*No Audio*
22:18:58	E56-P1	0:00:01	*No Audio*
22:18:59	E56-P1	0:00:01	*No Audio*
22:19:01	E56-P1	0:00:01	*No Audio*
22:19:02	E56-P1	0:00:01	*No Audio*
22:19:03	E56-P1	0:00:01	*Inaudible*
22:19:05	E56-P3	0:00:02	E56 is PAR.
22:19:09	E56-P1	0:00:01	*No Audio*
22:19:10	E56-P1	0:00:01	*No Audio*
22:19:12	DC3-M	0:00:03	Copy that, E413 are you PAR?
22:19:17	E413-P1	0:00:05	E413's PAR. Bravo- sorry, Delta Side with 3.
22:19:23	DC3-M	0:00:03	Copy that, E401 are you PAR?
22:19:34	FD-07	0:00:01	*Channel Marker*
22:19:36	DC3-M	0:00:05	E312 is PAR, E401 are you PAR?
22:19:44	FD-07	0:00:01	*Channel Marker*
22:19:46	FD-07	0:00:01	*No Audio*
22:19:47	FD-07	0:00:04	Command from dispatch, we did not receive a response from E401.
22:19:53	DC3-M	0:00:04	Copy that. Did you get a response out of 464?
22:20:01	FD-07	0:00:01	That's negative?
22:20:03	DC3-M	0:00:02	How about 503?
22:20:04	FD-07	0:00:01	*No Audio*
22:20:10	FD-07	0:00:01	Yes, we have 503?
22:20:12	DC3-M	0:00:02	503 are you PAR?
22:20:16	E503-P1	0:00:02	503's PAR.
22:20:18	DC3-M	0:00:03	Copy E19 are you PAR?
22:20:23	E19-P1	0:00:01	E19's PAR.
22:20:27	DC3-M	0:00:02	E2 are you PAR?
22:20:30	E2-P1	0:00:01	E2's PAR.
22:20:34	FD-07	0:00:01	*Channel Marker*
22:20:35	DC3-M	0:00:02	E18 are you PAR?
22:20:44	FD-07	0:00:01	*Channel Marker*
22:20:49	DC3-M	0:00:04	T18 is PAR. E18 are you PAR?

Key Up Time	Radio Designation	Duration	Transmission
22:20:54	FD-07	0:00:01	*Channel Marker*
22:20:56	E18-P1	0:00:06	E18 I'm PAR with 2 in the back, I'm side Charlie and I got a driver out front with the engine.
22:21:04	FD-07	0:00:01	*Channel Marker*
22:21:04	DC3-M	0:00:03	Copy that. Squad 414 are you PAR?
22:21:09	S414-P1	0:00:03	Squad 414 PAR, Side Alpha with 2.
22:21:13	DC3-M	0:00:03	Copy that. Carroll E131 are you PAR?
22:21:20	CCE131	0:00:01	We are PAR.
22:21:24	FD-07	0:00:01	*Channel Marker*
22:21:26	DC3-M	0:00:03	Carroll 91, Carroll 91 are you PAR?
22:21:32	CCE91	0:00:02	PAR, side Alpha.
22:21:44	FD-07	0:00:01	*Channel Marker*
22:21:50	DC3-M	0:00:03	Carroll 94, are you PAR?
22:21:53	CCET94	0:00:03	ET94 PAR, we're RIT.
22:21:58	DC3-M	0:00:02	Copy that. Carroll T2 are you PAR?
22:22:03	DC3-M	0:00:02	Okay, Carroll T2 is PAR.
22:22:12	DC3-M	0:00:03	323 are you PAR?
22:22:17	T323-P1	0:00:03	323 is PAR. We're in the bucket
22:22:22	DC3-M	0:00:07	Copy that. Any other units operating on the fire ground, let us know your location and whether you're PAR.
22:22:30	E412-P1	0:00:04	E412 1 with 414 driver covering T18.
22:22:36	T13-P1	0:00:04	T13's PAR with 4 Side Charlie.
22:22:41	E3-P1	0:00:03	E3's PAR with 3, Side Alpha.
22:22:47	E13-P1	0:00:04	E13's PAR, three, Side Alpha, one on a hydrant on Cherry Hill
22:22:53	T404-P1	0:00:03	T404's PAR, Side Charlie.
22:23:04	FD-07	0:00:01	*Channel Marker*
22:23:11	T323-P1	0:00:01	*No Audio*
22:23:12	T323-P1	0:00:02	Command from roof?
22:23:15	DC3-M	0:00:02	Unit calling command, go ahead.
22:23:19	T323-P1	0:00:14	TOW323, got heavy smoke coming out of that Delta exposure. We have not attempted to go on the roof to do anything until we have further direction.
22:23:34	FD-07	0:00:01	*Channel Marker*
22:23:34	DC3-M	0:00:10	We have not started initiating any attack at all on this fire. We're going to go ahead and reset first and assign units and maintain accountability.
22:23:48	T323-P1	0:00:03	Direct, standing by in the bucket.
22:23:54	FD-07	0:00:01	*Channel Marker*

Key Up Time	Radio Designation	Duration	Transmission
22:23:59	BC2-P1	0:00:05	32 get back in the bucket. Get off the roof.
22:24:06	T323-P1	0:00:03	He's with me on the ladder.
22:24:14	UNKNOWN	0:00:03	*No Audio*
22:24:17	DC3-M	0:00:04	Alpha from command, could you come to the command post?
22:24:23	DC1-P1	0:00:04	Charlie from- Charlie to command.
22:24:28	DC3-M	0:00:01	Go ahead Charlie.
22:24:31	DC1-P1	0:00:07	Alright, you got heavy smoke conditions - all exposures on this Charlie Side. Heavy smoke conditions.
22:24:40	DC1-P1	0:00:02	Near zero visibility.
22:24:43	DC3-M	0:00:01	Copy that.
22:24:46	DFM2-P1	0:00:09	Command from Safety, I'm here at Alpha entrance, you have four fans going for now, pushing this to the Charlie side.
22:25:04	FD-07	0:00:01	*Channel Marker*
22:25:14	FD-07	0:00:01	*Channel Marker*
22:25:24	FD-07	0:00:01	*Channel Marker*
22:25:28	DC1-P1	0:00:05	Command from Charlie, if possible we need a second engine back here.
22:25:34	FD-07	0:00:01	*Channel Marker*
22:25:37	DC3-M	0:00:02	Alright, I'll be sending something.
22:25:44	FD-07	0:00:01	*Channel Marker*
22:25:47	FD-07	0:00:01	Command from Dispatch.
22:25:51	DC3-M	0:00:01	*No Audio*
22:25:54	FD-07	0:00:01	*Channel Marker*
22:25:54	DC3-M	0:00:02	Command, go ahead.
22:25:56	FD-07	0:00:02	Did you want to keep the channel restricted?
22:26:00	DC3-M	0:00:03	No, you can go ahead and lift the restriction.
22:26:04	FD-07	0:00:01	*Channel Marker*
22:26:05	FD-07	0:00:01	Okay, I am direct.
22:26:14	FD-07	0:00:01	*Alert 3*
22:26:16	FD-07	0:00:09	Attention all units, Fire Box 56-4, TAC22's no longer command restricted, TAC22's no longer command restricted. Time is 22:26.
22:26:47	DC3-M	0:00:02	Charlie from command.
22:26:50	DC1-P1	0:00:01	Go ahead.
22:26:53	DC3-M	0:00:13	I'm going to send you an engine out there, why don't we go ahead and start up with portable monitor pipes entering into the structure-- correction, flowing into the structure, we're not putting anyone inside.
22:27:08	DC1-P1	0:00:09	Alright, we got a deuce-and-a-half flowing right now through the Charlie door. Crews are not making any entry—again-- heavy smoke conditions back here.

Key Up Time	Radio Designation	Duration	Transmission
22:27:21	DC3-M	0:00:05	Okay what units do you have operating under you so we can track you here at command?
22:27:30	DC1-P1	0:00:03	Standby, let me get a count.
22:27:45	DC1-P1	0:00:04	Alright, Charlie—from--Charlie to command
22:27:51	DC3-M	0:00:01	Go ahead.
22:27:52	DC1-P1	0:00:08	Alright, back here I got 404, E2, E13, E18, 503.
22:28:03	DC3-M	0:00:03	404, E2…
22:28:09	DC1-P1	0:00:05	T13, E18, 503
22:28:15	DC3-M	0:00:06	Got it, thank you. Alpha from command, when you get your… let me know what you have out front.
22:28:29	BC2-P1	0:00:12	I have E3, E14, E13, E56.
22:28:44	BC2-P1	0:00:02	And the RIT from Reese.
22:28:51	DC3-M	0:00:03	Alpha repeat that message, you were cut off.
22:28:55	BC2-P1	0:00:17	E3, E14, E13, E56, Reese as RIT, and I got the Tower crew in the bucket.
22:30:32	DC3-M	0:00:18	All units from command. What we're going to be doing here is we're going to be setting up blitz fires and we're going to be setting up portable monitors on Side Alpha and Side Charlie. We're not going to be deploying anyone inside of the structure at this point. So, go ahead Alpha and Charlie, go ahead and set your lines up.
22:30:54	BC2-P1	0:00:02	Command from Alpha.
22:30:57	DC3-M	0:00:01	Go ahead.
22:30:59	BC2-P1	0:00:08	Charlie - Delta corner, it's pushing pretty hard through the roof. I think it's getting ready to break through
22:31:07	DC3-M	0:00:07	Copy that. Tower 32 go ahead and set up for master stream operations.
22:31:16	T323-P1	0:00:05	We're set up. Just need somebody to pump our line.
22:31:24	DC3-M	0:00:05	Okay, you said you're set up? Do you have… do you have water going to you?
22:31:30	T323-P1	0:00:04	We have a line. It has not been charged.
22:31:37	DC3-M	0:00:01	Direct.
22:32:20	FD-07	0:00:01	Command from Dispatch.
22:32:22	DC3-M	0:00:01	Go ahead.
22:32:26	FD-07	0:00:05	Can you have somebody call-- one of the Deputy Chiefs call Deputy Chief 4 on his cell phone please?
22:32:33	DC3-M	0:00:03	Alright, we'll get there.
22:32:37	FD-07	0:00:02	Okay, thank you. 22:32.
22:32:46	FD-07	0:00:01	Command from Dispatch.
22:32:48	DC3-M	0:00:01	Go ahead.
22:32:50	FD-07	0:00:05	Can we have an update on the member that was in the building from T18? A priority?
22:33:10	DC3-M	0:00:01	Standby, I'm getting it.

Key Up Time	Radio Designation	Duration	Transmission
22:33:14	BC2-P1	0:00:03	Charlie from Alpha.
22:33:27	DC3-M	0:00:07	Dispatch from command, member status: conscious, alert, was able to ambulate to the medic, they're still evaluating.
22:33:37	FD-07	0:00:01	Okay, direct, 22:33.
22:33:41	DC1-P1	0:00:02	Command from Charlie.
22:33:46	BC2-P1	0:00:03	Charlie from Alpha.
22:33:51	DC1-P1	0:00:03	Command from Charlie.
22:33:55	DC3-M	0:00:02	Charlie, go ahead.
22:33:57	DC1-P1	0:00:07	Alright, we're starting to get heavy fire conditions, we now have a breach in the wall. Active breach in the wall we're backing crews out.
22:34:05	DC3-M	0:00:07	Alright, set up a collapse zone one-and-a-half times the height of the building.
22:34:13	DC1-P1	0:00:09	Looks like the breach is- the crack is on the-- that bump out there on the Charlie Side so we're backing crews basically to a safe zone out of the collapse zone.
22:34:24	DC3-M	0:00:05	Direct, you can go ahead and start getting your-- ladder pipes set up back there as well.
22:34:32	E56-P4	0:00:04	413, 413, pump up my pressure.
22:34:43	BC2-P1	0:00:03	Command from Alpha.
22:34:48	DC3-M	0:00:01	Command, go ahead.
22:34:50	BC2-P1	0:00:16	There's a set of metal stairs, Charlie Side, Delta Side. There's a hose line going up there-- an inch-and-three quarter, but if we can get a larger diameter and throw- flow- it through that open doorway, it might help out.
22:35:09	DC3-M	0:00:05	We're getting ready to open up some master streams here, why don't we hold up.
22:35:20	E56-P4	0:00:03	Alright. 50 pounds would be good. Give me 50 more.
22:35:29	E18-P4	0:00:05	E18 to T18, I got your water ready whenever you are.
22:35:37	FM4	0:00:02	Okay, standby. We're setting up.
22:35:44	UNKNOWN	0:00:03	*No Audio*
22:36:02	DC1-P1	0:00:03	Command from Charlie.
22:36:06	DC3-M	0:00:01	Go ahead.
22:36:08	DC1-P1	0:00:06	Alright, I'm going to need to set up Academy 1 as my Charlie safety officer.
22:36:16	DC3-M	0:00:06	Copy that, Alpha from command, let me know who you want to set up as Alpha Safety as well.
22:36:30	T323-P2	0:00:03	TOW323 outside vent to command.
22:36:38	DC3-M	0:00:02	Unit calling command.
22:36:41	T323-P2	0:00:16	TOW323 outside vent, we're prepared for water. E2's going to be pumping the ladder pipe but we have no fires through the roof yet so there's no place to put the water. Roof crew says when they see the fire impinge the roof they'll let us know.

Key Up Time	Radio Designation	Duration	Transmission
22:36:58	DC3-M	0:00:03	Okay, thank you, standby.
22:37:02	DFM2-P1	0:00:04	Command from Fire Marshal 2, I still have your Alpha Safety.
22:37:07	DC3-M	0:00:02	Copy that.
22:37:16	BC2-P1	0:00:03	Command from Alpha.
22:37:20	DC3-M	0:00:01	Go ahead.
22:37:22	BC2-P1	0:00:17	With the roof still intact and not going to be flowing the master streams, if we can get a two-and-a-half with a blitz fire to this corner that I was talking about through this doorway to set it up. We're not going to make entry. Just flow water through that doorway, that's where it looks like a lot of the fire is.
22:37:40	DC3-M	0:00:03	Copy that, I am good with a blitz fire being there.
22:37:45	BC2-P1	0:00:03	Alright, I'm going to get E13 to do it.
22:37:54	DC3-M	0:00:07	All units from command, rehab is going to be at the mattress warehouse, which is on the Alpha-Delta corner.
22:38:04	E503-P1	0:00:05	Go ahead and charge the deuce-and-a-half for us, charge the deuce-and-a-half coming to Charlie.
22:38:11	E56-P4	0:00:03	56 Mobile, deuce-and-a half-coming
22:38:18	E56-P4	0:00:03	What are you flowing on that? You got a nozzle or are you flowing a monitor pipe?
22:38:22	E503-P1	0:00:03	No, we just put a monitor pipe, let me see what size tip it is.
22:38:26	E56-P4	0:00:04	10-4 Danny it doesn't matter, I got like 6 lines off I'm giving you everything.
22:38:31	E503-P1	0:00:02	Alright, we're ready, go ahead and send it.
22:38:35	E56-P4	0:00:01	Coming at you.
22:38:45	BC2-P1	0:00:02	Command from Alpha.
22:38:48	DC3-M	0:00:01	Go ahead.
22:38:49	BC2-P1	0:00:07	captain from E13 just came back to let me know that door I was talking about now has fire pushing out.
22:38:57	DC3-M	0:00:02	Alright, is that where you were putting the blitz fire?
22:39:01	BC2-P1	0:00:03	Yup, as soon as we find one.
22:39:04	DC3-M	0:00:01	Copy that.
22:39:08	DC1-P1	0:00:04	Hey, Scott watch that second crack over there.
22:39:20	DC1-P1	0:00:04	Command from Charlie, we now have fire through the roof.
22:39:25	T323-P1	0:00:10	Tower from command, go ahead start our flow. They also have a gas fed fire, heavy fire through the roof and collapse.
22:39:37	DC3-M	0:00:03	Copy that.

Key Up Time	Radio Designation	Duration	Transmission
22:39:42	E18-P4	0:00:02	18, I'm sending it.
22:40:00	E13-P4	0:00:02	E3 driver, water coming to you.
22:40:05	E3-P4	0:00:01	Alright, thank you.
22:40:11	DC1-P1	0:00:05	Charlie Safety from Charlie.
22:40:20	ACAD1-P1	0:00:03	Sorry, we're just trying to anchor this down then we're out of here.
22:40:24	DC1-P1	0:00:03	Alright, I don't like the way that wall looks, try to back out.
22:40:35	BC2-P1	0:00:10	Command from Alpha. All Alpha is open now, all Alpha is open. Every window's broke out, we're going to go ahead and start master streams from here.
22:40:47	DC3-M	0:00:02	Direct
22:40:50	DC3-M	0:00:05	E56 from command, we're going to rotate a crew in for you.
22:40:56	E18-P4	0:00:07	E18 Mobile to 412 Mobile, you can go ahead and boost me a little bit, get me another 50 if you can.
22:41:05	E412-P4	0:00:02	Alright. Coming.
22:41:09	T323-P1	0:00:03	Command from Tower, get us water now please.
22:41:16	DC3-M	0:00:05	Engine that's supplying 32, go ahead and give them water.
22:41:23	CCE91	0:00:02	[CCE] 91, copy.
22:41:26	T404-P1	0:00:02	E3 go ahead and charge 404's ladder pipe.
22:41:31	E56-P1	0:00:03	*No Audio*
22:41:59	DC3-M	0:00:01	*Inaudible*
22:42:15	E56-P4	0:00:06	56 Mobile, I'm going to shut down a couple of these inch-and-three-quarters. I'm sucking on my intake.
22:42:33	E18-P4	0:00:04	E18 Mobile to Truck, how you looking?
22:42:39	FM4	0:00:01	We're good.
22:43:03	DC3-M	0:00:02	Dispatch from command.
22:43:06	FD-07	0:00:01	Go ahead command.
22:43:08	DC3-M	0:00:12	Updated status: we have fire that's breached through the roof and a partial collapse of Side Charlie. We have 3 master streams in operation right now and we're rotating crews in to rehab.
22:43:25	FD-07	0:00:04	Okay direct. Fire through the roof, partial collapse Side Charlie, rotating crews into rehab.

Key Up Time	Radio Designation	Duration	Transmission
22:43:31	T323-P1	0:00:02	Command from Tower.
22:43:35	DC3-M	0:00:01	Go ahead.
22:43:37	T323-P1	0:00:08	If you haven't already done so, BGE. Appears you have a gas-fed on this roof area.
22:43:46	DC3-M	0:00:04	Copy that, gas and electric are both here. They're doing their work.
22:43:51	T323-P1	0:00:01	Copy.
22:43:53	DC1-P1	0:00:02	Command from Charlie.
22:43:57	BC2-P1	0:00:02	Command from Alpha.
22:44:01	DC3-M	0:00:01	Charlie, go ahead.
22:44:03	DC1-P1	0:00:06	Not sure if you have your phone, I just sent you some images of what we see back here. Still heavy fire conditions.
22:44:10	DC3-M	0:00:01	Direct
22:44:16	BC2-P1	0:00:02	Command from Alpha.
22:44:19	DC3-M	0:00:01	Alpha, Go ahead.
22:44:22	BC2-P1	0:00:12	Ladder pipes are doing a little good, still heavy fire on the Charlie-Delta corner. Charlie-Delta corner.
22:44:35	DC3-M	0:00:07	Copy that. Alpha, Carroll 12 is going to assist T18 just FYI.
22:44:45	BC2-P1	0:00:02	Carroll who?
22:44:59	DC1-P1	0:00:02	Command from Charlie.
22:45:02	DC3-M	0:00:01	Go ahead.
22:45:04	DC1-P1	0:00:08	Alright, we liasoned [sic] with BGE, they are not able to secure utilities. Again, utilities are not able to be secured at this time.
22:45:12	DC3-M	0:00:03	Is that gas and electric or just gas?
22:45:16	DC1-P1	0:00:02	Both sides, gas and electric.
22:45:20	DC3-M	0:00:10	Dispatch from command, contact BGE and see if they can get somebody out here and see if they can dig up a line and pinch it off, and uh--
22:45:33	DC1-P1	0:00:06	Hey Chief, I'm working with BGE back here, they're getting the processes in place.
22:45:40	DC3-M	0:00:01	Alright, thanks.
22:45:44	FD-07	0:00:01	22:45
22:45:44	BC2-P1	0:00:18	Command from Alpha. 413 is out of water, they don't have enough pressure to flow all this. If we can get an engine out of staging to go to Franklin and Reisterstown, there's a hydrant over there that they can lay out from and help 413.

Key Up Time	Radio Designation	Duration	Transmission
22:46:04	DC3-M	0:00:02	Alright, which side do you need them?
22:46:09	BC2-P1	0:00:13	Franklin and Reisterstown, somewhere out there-- there should be a hydrant that they can lay into 413, which is at the abandoned gas station.
22:46:24	DC3-M	0:00:03	Copy that, we're grabbing that out of staging now.
22:46:30	E18-P4	0:00:04	Command from E18 Mobile.
22:46:38	DC3-M	0:00:02	Unit calling command.
22:46:41	E18-P4	0:00:12	E18 Mobile, I'm right in front of 1-1-9-1-5, the Bank of America. The smoke conditions are starting to deteriorate, we might want to get someone to come over down here and force this door.
22:46:54	DC3-M	0:00:03	Alright, let's not force it until we get a line in place.
22:47:04	DC3-M	0:00:06	Alpha from command, can you spare a crew to take a line to the Bank of America building?
22:47:17	E2-P4	0:00:05	2 driver to Reese's engine on my hydrant, I need you to boost my pressure please.
22:47:23	CCE91	0:00:03	*No Audio*
22:47:34	CCE91	0:00:04	[CCE] 91 increased to 150.
22:47:55	E13-P4	0:00:03	E3 driver from E13 driver, how's your pressure?
22:48:24	DC3-M	0:00:01	Dispatch from command.
22:48:26	FD-07	0:00:01	Command, go ahead.
22:48:28	DC3-M	0:00:16	Make an announcement that all first alarm crews are going to be replaced by the second and third alarm crews and upon being relieved they are to report to staging-- I'm sorry-- they are to report to medical and rehab and that is not an option.
22:48:46	FD-07	0:00:02	*Alert 3*
22:48:48	FD-07	0:00:16	Attention units Fire Box 56-4. All first alarm crews: you will be being replaced by second and third alarm crews. Once replaced, you are to report to medical and rehab; I repeat, you are to report to medical and rehab. Time's 22:49.
22:49:05	DC3-M	0:00:07	Side Charlie from the command post, what number of crews do you need to rotate the crews out to get to rehab?
22:49:13	E56-P4	0:00:06	56 Mobile to 413-- 412 Mobile--13 or, I'm good on the water right now, good on the water.
22:49:22	DC1-P1	0:00:03	Standby, let me get an accurate count.
22:49:30	DC3-M	0:00:04	Alpha, what first alarm units do you still have that you need replaced?
22:49:37	BC2-P1	0:00:03	I don't think I have any.
22:49:47	DC3-M	0:00:05	Okay, then I'm going to hold the remainder in staging and see what Charlie needs.
22:49:59	DC3-M	0:00:06	32, do you need an additional tower crew just to support you? I have Carroll's Tower 12's crew here.
22:50:07	T323-P1	0:00:08	We just need more master streams set up; nobody else in the bucket is needed. We're losing the rest of the roof.
22:50:16	DC3-M	0:00:07	Alright, we're putting Carroll Truck 2 on the Delta Side, their crew is committed to RIT so I will replace them.
22:50:24	T323-P1	0:00:04	Delta-Charlie could use some help.

Key Up Time	Radio Designation	Duration	Transmission
22:50:32	DC3-M	0:00:03	*Inaudible*
22:50:36	E3-P1	0:00:02	Alpha from E3.
22:50:41	BC2-P1	0:00:01	Alpha.
22:50:43	E3-P1	0:00:03	You said that you want a line to the Bank of America correct?
22:50:48	DC3-M	0:00:07	Alpha from command, do we need to back up some and establish a collapse zone? I think we're too close with our master streams at this point.
22:50:56	BC2-P1	0:00:06	Uh, were getting close. I was just thinking we're getting ready to get fire showing here on the Alpha side in a minute.
22:51:02	DC3-M	0:00:04	Alright Charlie, you good with collapse zone, we'll do 30 feet all the way around?
22:51:11	DC1-P1	0:00:02	Command from Charlie.
22:51:15	DC3-M	0:00:07	Did you copy that? You good with a collapse zone of 30 feet all the way around? We're starting a light off in the front. I want to get everybody out of the way.
22:51:26	DC1-P1	0:00:03	We're good on Charlie side.
22:51:29	DC3-M	0:00:04	Command, dispatch: collapse zone, 30 feet all sides, make an announcement.
22:51:33	FD-07	0:00:02	*Alert 3*
22:51:36	FD-07	0:00:11	Units fire box 56-4, we are creating a collapse zone 30 fee back from the structure in all directions; I repeat: 30 feet back in all directions. Time 22:51.
22:51:48	ACAD1-P1	0:00:02	404, you're over shooting it.
22:51:57	DC1-P1	0:00:01	Command from Charlie.
22:52:00	DC3-M	0:00:01	Go ahead Charlie.
22:52:02	DC1-P1	0:00:11	Alright, I'm good on relief crews back here. I now have Carroll 134, I have E852, and I have an engine out of 46, so we're good.
22:52:14	DC3-M	0:00:07	Okay yeah, I sent them out so that we can get 50 and E18 through rehab, so I want to make sure and see if you need anymore.
22:52:23	DC1-P1	0:00:05	No, I think we're good. Since we're defensive I think we're good.
22:52:29	DC3-M	0:00:04	Okay, and are all of your large equipment out of that collapse zone?
22:52:35	DC1-P1	0:00:14	The only equipment that we don't have completely out is going to be 404, but they're far enough back that if the wall did collapse, it shouldn't impact their apparatus.
22:52:49	DC3-M	0:00:17	Received. Dispatch from command, updated situation status: Now have fire through the roof and significant smoke emulating from the Side Alpha. We're in a strictly defensive mode with master stream and ground stream operations. Collapse zone has been established, and all personnel are accounted for.

Key Up Time	Radio Designation	Duration	Transmission
22:53:09	ACAD1-P1	0:00:10	Command from Charlie Safety partial collapse side C - Side C - Bravo corner, Charlie-Bravo corner partial collapse.
22:53:09	FD-07	0:00:01	Okay, direct, 22:53.
22:53:20	DC3-M	0:00:07	Received. Command to all units on the fire ground, partial collapse, Charlie-Delta corner, maintain 30-foot collapse zone all sides of the structure.
22:53:35	DC1-P1	0:00:08	Command from Charlie we're going to reposition T13 and see if we can back them out of here just in case we need to reposition 404.
22:53:45	DC3-M	0:00:08	Would a tower ladder on the back side be better than the straight stick that you have? I have one of them on the Alpha Side not committed in staging.
22:53:56	DC1-P1	0:00:07	No, I think what we have now is good, it's just still heavy fire, but I think what we have is good.
22:54:03	DC3-M	0:00:01	Okay.
22:54:09	CCE91	0:00:02	[CCE] 9-1 to 3-2, how's your pressure?
22:55:47	DC3-M	0:00:08	Command to all units on the fire ground: Air Unit is located directly adjacent to the command post. Air Unit behind the command post near the rehab.
22:56:58	E18-P4	0:00:08	E18 to 412, you got any more on that hydrant?
22:57:08	E412-P4	0:00:03	Yeah they're backing T13 over now.
22:57:13	E18-P4	0:00:03	Okay, I'm just losing, I need a little more if you can.
22:57:18	T18-P1	0:00:04	E18 from T18, can you shut down our line to our ladder pipe?
22:57:25	E18-P4	0:00:03	Yeah, coming down.
22:58:37	DC1-P1	0:00:03	Command from Charlie.
22:58:44	DC3-M	0:00:01	Charlie, go ahead.
22:58:47	DC1-P1	0:00:21	I'm not sure if we have the resources, but I had someone do some recon back here. If we can get a unit into 6-Echo- East Cherry Hill - that backyard, there's enough room for equipment to get there. We can get a monitor pipe in, and get a straight shot into this back door--
22:59:08	DC1-P1	0:00:03	--where we're having a difficult time getting to.
22:59:12	DC3-M	0:00:05	Alright, can it be from a deck gun, or do you think it's a blitz fire kind of thing?
22:59:23	DC1-P1	0:00:03	Standby.
22:59:29	DC3-M	0:00:01	*No Audio*
22:59:33	DC3-M	0:00:04	We're sending E312 back there to get started on it.
22:59:37	DC1-P1	0:00:06	Alright, I believe we also have room for a truck. So, if we have a truck that's available, we probably could utilize them.
22:59:49	DC3-M	0:00:05	Copy that, we'll work on getting Carroll Tower 12 back there.

APPENDIX B—TURNOUT GEAR AND SCBA INSPECTION RECORDS

BALTIMORE COUNTY FIRE DEPARTMENT
Health and Safety Bureau

PERSONAL PROTECTIVE EQUIPMENT VISUAL INSPECTION FORM

This form shall be completed for each set of personal protective equipment worn by member(s) who are involved in an incident which is being investigated by the Health and Safety Bureau. Such events may include members who are seriously injured or involved in a near-miss incident. Investigating members must also ensure that: 1) all PPE is photographed to further document its condition; 2) all PPE is stored to maintain its present condition; and 3) strict chain of custody is maintained for all protective clothing and equipment.

DATE OF INSPECTION	INSPECTOR	INCIDENT DATE	DISPATCH TIME	CC #	BOX AREA
7/20/2023	BC T. Rostkowski	7/18/23	21:44	231992034	56-04

MEMBER WEARING PPE	MEMBER'S ID NUMBER	INCIDENT LOCATION
[redacted]	[redacted]	11909 Reisterstown Road, Reisterstown, MD 21136

HELMET

MAKE	MODEL	SERIAL NUMBER	SIZE	PHOTOS #
Cairns	N6A	UTO	N/A	1-7

VISUAL INSPECTION COMMENTS:
Personal fire helmet authorized under SOP 400-26. Helmet shows extensive signs of wear and use. The brim is pliable and material is flaking off. No obvious new damage. Eye protection not present as required by NFPA 1971. No damage to ear flaps aside from excessive wear. A certification label is present inside the cap, however serial number unreadable. Member instructed to remove helmet from service and recertify.

HOOD

MAKE	MODEL	SERIAL NUMBER	SIZE	PHOTOS #
Life Liners	KL23	UTO	OSFA	57-59

VISUAL INSPECTION COMMENTS:
Hood shows normal signs of wear; elastic is in acceptable condition. No signs of exposure to high heat or overly excessive wear. Hood certified to NFPA 1971 2013 ed.; label present. Lot number and date of manufacture have been worn and are not discernable. Certified to previous edition of NFPA 1971; referred to third party vendor with recommendation to discard.

TURNOUT COAT

SHELL MAKE	SHELL MODEL	SHELL SERIAL NUMBER	SHELL SIZE	SHELL PHOTOS #
Lion	V-Force	0011893321	5835R	60-69

DRD SERIAL NUMBER	DRD SIZE	DRD MANUFACTURE DATE
Not Present	N/A	N/A

VISUAL INSPECTION COMMENTS:
The shell shows moderate to heavy wear; all Velco and buckles function as designed. The DRD is not installed or present. There is a 1" tear to the scotchlite on the right pocket. There is no further damage to the coat. Multiple personal effects retrieved from the pockets to be returned to the member. Shell certified to NFPA 1971, 2018 ed; label present. Date of manufacture: 02/2021. Coat referred to third-party vendor for cleaning and recertification.

LINER MAKE	LINER MODEL	LINER SERIAL NUMBER	LINER SIZE	LINER PHOTOS #
Lion	Glide Ice Ctr. Cut	0011893322	5835R	8; 71-73

VISUAL INSPECTION COMMENTS:
The liner shows normal wear. There is no damage noted. The liner was inverted to inspect the moisture barrier and no anomalies were found. Liner certified to NFPA 1971, 2018 ed; label present. Date of manufacture: 02/2021. Coat referred to third-party vendor for cleaning and recertification.

TURNOUT PANTS				
SHELL MAKE	SHELL MODEL	SHELL SERIAL NUMBER	SHELL SIZE	SHELL PHOTOS #
Lion	V-Force	0012564231	54XL	35-36; 39-42

VISUAL INSPECTION COMMENTS:
Pant shell appears grossly structurally intact. The shell shows moderate wear and heavy soil. All buckles, Velcro, and zippers function as designed. There is a tear to the bottom of the right bellows pocket; the tear does not compromise the integrity of the gear. Multiple personal effects retrieved from the pockets to be returned to the member. Shell certified to NFPA 1971, 2018 ed; label present. Date of manufacture: 11/2021. Pants referred to third-party vendor for cleaning and recertification.

LINER MAKE	LINER MODEL	LINER SERIAL NUMBER	LINER SIZE	LINER PHOTOS #
Lion	Glide Ice Ctr. Cut	0012564232	54XL	43-52

VISUAL INSPECTION COMMENTS:
The liner shows normal wear. There is a tear noted in the left thigh area of the liner, approximately 1/2" in length. The liner was inverted to inspect the moisture barrier and no anomalies were found. Liner certified to NFPA 1971, 2018 ed; label present. Date of manufacture: 11/2021. Pants referred to third-party vendor for cleaning and recertification.

FIREFIGHTING GLOVES				
MAKE	MODEL	SERIAL NUMBER	SIZE	PHOTOS #
Honeywell	SGKCG	226557	XL	53-56

VISUAL INSPECTION COMMENTS:
Both gloves appear glossly structurally intact with normal wear. There is no apparent damage or integrity issues appreciated. Gloves are a size Cadet XL with a Date of manufacture of 12/2012. Due to gloves being past the 10-year recommended replacement cycle, ***BOTH GLOVES CONDEMNED AND DESTROYED***

FOOTWEAR				
MAKE	MODEL	SERIAL NUMBER	SIZE	PHOTOS #
Globe	Unkown	Unkonwn	Unknown	31-34

VISUAL INSPECTION COMMENTS:
Footwear shows signs of heavy use; excessive crushing noted to the calf section. All boot straps are secure and intact. Reflective striping is heavily worn. Moderate to excessive wear noted to the boot treads. Partial certification labels are present; however, the ink has worn off of them redering any speciics of serial number, size, or certification status unknown. ***BOTH BOOTS CONDEMNED AND DESTROYED***

ADDITIONAL NOTES OR COMMENTS

IF PERTINENT, INCLUDE THE CONDITION OF THE MEMBER'S UNIFORM / CLOTHING IN THIS SECTION.
Not Applicable

INSPECTOR'S PRINTED NAME	INSPECTOR'S SIGNATURE	DATE
BC Timothy B. Rostkowski		7/20/2023

BALTIMORE COUNTY FIRE DEPARTMENT
Health and Safety Bureau

SELF-CONTAINED BREATHING APPARATUS VISUAL INSPECTION FORM

This form shall be completed for each self-contained breathing apparatus worn by member(s) who are involved in an incident which is being investigated by the Health and Safety Bureau. Such events may include members who are seriously injured involved in a near-miss incident. Investigating members must also ensure that: 1) the SCBA is photographed to further document its condition; 2) the SCBA is stored to maintain its present condition; and 3) strict chain of custody is maintained for the SCBA.

DATE OF INSPECTION	INSPECTOR	INCIDENT DATE	DISPATCH TIME	CC #	BOX AREA
7/20/2023	BC T. Rostkowski	7/18/23	21:44	231992034	56-04

MEMBER WEARING PPE	MEMBER'S ID #	SCBA IDENTIFIER	INCIDENT LOCATION
[redacted]	[redacted]	T18-1	11909 Reisterstown Rd, Reisterstown 21136

SCBA HARNESS ASSEMBLY

MAKE	MODEL	SERIAL NUMBER	NIOSH APPROVAL #	PHOTOS #
MSA	G1	E00401505C753A89	TC-13F-0787CBRN	9-12; 16

WAS THE FIREFIGHTER WEARING THEIR SCBA? ☒ YES ☐ NO
IF NO, WHERE WAS THE SCBA FOUND IN RELATION TO THE FIREFIGHTER?

DESCRIBE THE CONDITION OF ALL SCBA HOSES AND TUBING:
All hoses and tubing appear to be grossly intact.

VISUAL INSPECTION COMMENTS:
Entire harness assembly shows signs of moderate to heavy use. No major structural damage present. Equipped with Lithium-ion rechargeable battery pack which shows low battery alert and no visible damage.

FACEPIECE AND REGULATOR

FACEPIECE SERIAL #	MANUFACTURE DATE	FACEPIECE INTACT AND APPEARS SERVICABLE?		PHOTOS #
7-2772-1	UTO	☒ YES ☐ NO		17-22
REGULATOR SERIAL #	**MANUFACTURE DATE**	**CYLINDER VALVE POS.**	**BYPASS VALVE POS.**	**PHOTOS #**
UTO	UTO	Closed	Closed	9, 16

DESCRIBE THE CONDITION OF THE FACEPIECE:
The facepiece is a first-generation facepiece. Standard 4-point facepiece/kevlar, size L/M. Presecription eyewear insert not present. Neck strap attached and present. All buckles and straps present with adequate elasticity. Nosecup appears properly aliged and inserted. Minor scratches to lens, no crazing present. Flowtest performed with facepiece, unit passed.

DESCRIBE THE CONDITION OF THE REGULATOR:
Unremarkable; no obvious damage. Bypass valve was found in the closed position.

VISUAL INSPECTION COMMENTS:
As above.

CYLINDER				
MAKE	MODEL	MANUFACTURE DATE	DOT APPROVAL #	PHOTOS #
MSA	G1-45/4500	UTO	10915-4500	13-16

PRESSURE CAPACITY	CYLINDER PRESSURE	CONTROL MODULE PRESSURE	WAS LOW AIR ALARM FUNCTIONING?
4500 psi	1000 psi	920 psi	☒ YES ☐ NO

DESCRIBE THE CONDITION OF THE CYLINDER:
T18-4 cylinder. Staining on cylinder consistent with heavy use. Last hydrostatic test date printed on cylinder is unreadable.

VISUAL INSPECTION COMMENTS:
Cylinder shows signs of heavy use, but appears grossly intact.

ADDITIONAL NOTES OR COMMENTS

Entire SCBA assembly (harness, cylinder, and facepiece) underwent flow testing at the Baltimore County Fire Department SCBA Repair Shop on 7/28/23. The unit passed.

The facepiece was discovered to be a first-generation facepiece which have currently been upgraded to third generation facepieces. These units were to be removed from service as they were discovered to have issues with the exhalation valve sticking. The unit inspected was removed from service and the member was supplied with a new facepiece.

INSPECTOR'S PRINTED NAME	INSPECTOR'S SIGNATURE	DATE
BC Timothy B. Rostkowski		7/20/2023

MSA

Posi3 USB Test Results

Complete SCBA Test

7/28/2023 8:26:16 AM

MSA
G1 SCBA, 4500, 33% Alarm, with MP Test
S/N: E00401505C753A89

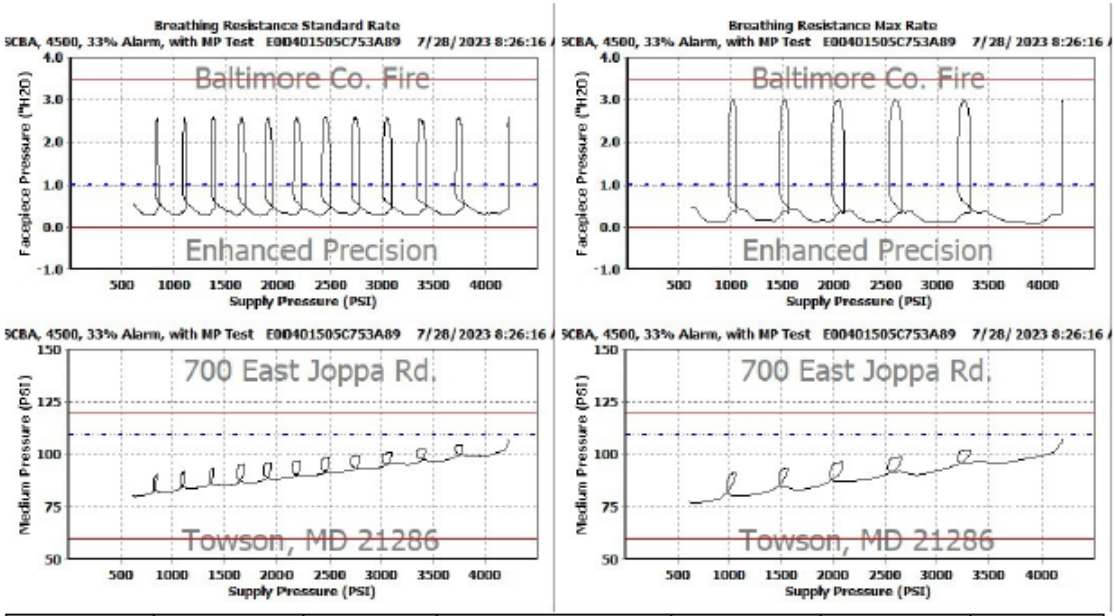
Randallstown
T18-5 N

Posi3 USB serial # U07774 - Calibration was up to date when the test was performed

Auxiliary IDs	
Facepiece	
Second Stage	
First Stage/Reducer	
Low Pressure Alarm	
Cyl Connector	
Airline Attachment	
Harness	
Visual Inspection	
Facepiece	Not Perform
Backframe/Harness	Pass
Cylinder	Pass
Low Pressure Warning	Pass
Hoses	Pass
Manifold Volume: 0.077	

Functional Tests			
Exhalation Pressure	Pass	2.3	"H2O
Facepiece Leakage	Pass	0.1	"H2O
Static Facepiece Pressure	Pass	1.0	"H2O
Static Medium Pressure	Pass	109.1	PSI
Medium Pressure Creep	Pass	0.9	PSI
1st Breath Activation	Pass	-5.1	"H2O
High Pressure Leakage	Pass	2	PSI
Bypass Pressure	Pass		
Alarm Activation Pressure			
G1 4500 Bell (33%)	Pass	1563	PSI
Ringdown	Pass	95	PSI
Gauge Accuracy			
4500 PSI Numbers	Pass		

1000±225 PSI		2000±225 PSI		3000±225 PSI	
Pass	882	Pass	1835	Pass	2841
G1 4500 HUD (33%)		Pass			
33% (1575±90 PSI)		50% (2250±225 PS		75% (3375±225 PS	
Pass	1510	Pass	2196	Pass	3307



Minimum		Maximum			*Breathing Results*	Minimum		Maximum		
0.3	"H2O	2.6	"H2O	Pass	Facepiece Pressure	0.1	"H2O	3.0	"H2O	Pass
80.1	PSI	106.9	PSI	Pass	Medium Pressure	76.8	PSI	107.5	PSI	Pass

7/28/2023 8:57:25 AM - Bill Connelly: Inspection and flow test of G1 T1805 following incident# 231992034. Performed MSA r

Tested by : Bill Connelly
Baltimore County Fire Department
12200b Long Green Pike Glen Arm Maryland

EP
Version 5.0.0.0P

MSA
The Safety Company

October 23, 2023

Baltimore County Fire Department
Attention: Scott G. Ebbert, Bureau Chief, Training & Education
1545 Sparrows Point Blvd., Baltimore MD 21219

Chief Ebbert:

This letter is intended to provide information related to the G1 SCBA EBSS deployment by two Baltimore County firefighters on July 18, 2023. As part of its investigation, Baltimore County Fire Department requested MSA's review of the SCBA incident logs and session data provided via email on September 18, 2023. During a meeting held on October 10, 2023 with MSA associates, Baltimore County FD, and MOSH, MSA associates obtained clarification on incident details and shared the following information:

MSA's Engineering group reviewed the returned data logs for both SCBAs and confirmed that the ExtendAire II system performed as designed.

Based on MSA's understanding of the event as detailed by Baltimore County FD, Truck 18 arrived on scene and Firefighter 1 (T18-1) entered the structure. After entering the structure, T18-1 became disoriented and went into low alarm status. Around the time of low alarm status T18-1 requested assistance. During the search T18-1 activated the manual PASS alarm. Firefighter 2 (E19-1) made the EBSS connection, acting as the donor SCBA to T18-1 who became the receiver SCBA. It took approximately 7 minutes for the firefighters to egress the building after the EBSS connection was made, at which point the firefighters promptly shut off both SCBAs.

Figures 1 and 2 are annotated G1 Incident Logs for SCBA T18-1 and E19-1. Incident logs do not provide exact values for time or pressure; therefore, the annotations are estimates based on the provided charts. If specific values are required, this information can be pulled from the periodic data log download or viewing incident in A2 software.

As annotated in Figures 1 and 2, it appears that an EBSS connection is made with T18-1 at approximately 800psig cylinder pressure and E19-1 at approximately 3100psig cylinder pressure. At the estimated time of connection, the E19-1 log indicates a drastic increase in breathing rate and a decrease in cylinder pressure. At the same time the T18-1 log indicates a sharp decrease in breathing rate and a flatline in cylinder pressure. Based on the log data, it can be estimated that this connection was made for approximately 7.5 minutes before the two SCBAs were depressurized. The decrease in consumption of the lower cylinder pressure SCBA and the increase in consumption of the higher cylinder pressure SCBA correlate with the expected performance of two nominally working G1 SCBA making an EBSS connection with the cylinder open.

An EBSS connection will connect the medium pressure volumes (defined as the pressure between the 1st stage reducer and 2nd stage regulator). When this occurs the 1st stage reducer (and thus the cylinder) with the higher medium pressure output will become the primary reducer from which both 2nd stage regulators will draw air. The G1 SCBA uses an unbalanced 1st stage reduction, which means the output pressure of the reducer will decrease as the input (cylinder) pressure decreases. This design allows the SCBA with the higher cylinder pressure to serve as the donor and supply a larger portion of the supplied air until the pressures of the two cylinders become closer to each other. As the cylinders approach an equal pressure, it is be expected that the usage of each cylinder will also equalize between both SCBAs. This expected EBSS behavior explains the inflection points in the figures and is used to determine the expected time of EBSS connection.

In addition to the EBSS connection information it was confirmed that, based on the incident log alarm data, T18-1 entered PASS alarm approximately 11.5 minutes after pressurization and prompted a manual PASS alarm approximately 16 minutes after pressurization. The manual PASS alarm remained active for the remainder of the incident. MSA also noted to Baltimore County FD that at the end of the incident both T18-1 and E19-1 should have been in low air alarm with both SCBA audible alarms ringing.

Utilizing the cylinder pressures and breathing rates it would be possible to estimate the remaining air volume in both SCBA at any given point on the chart and estimated time on air remaining. Based on observations from the provided charts, the rate of high pressure decay of T18-1 prior to EBSS connection, coupled with the time required to egress the building, it is likely that T18-1 would have run out of air without the EBSS connection.

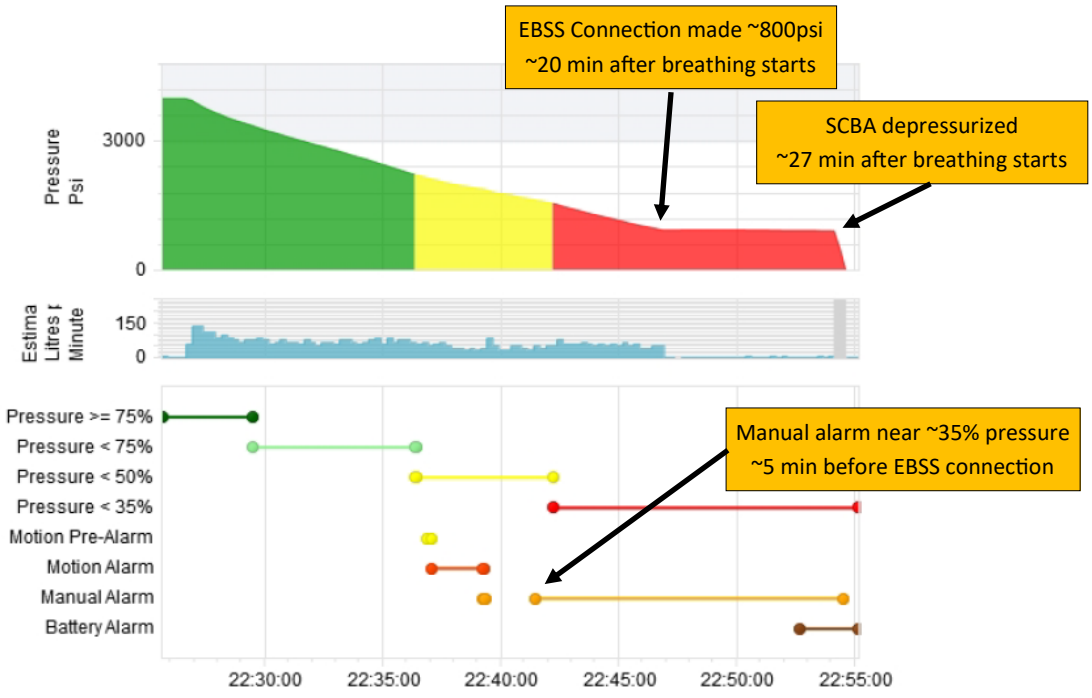
Sincerely,

Katlyn McGraw
Product Line Manager, Respiratory Protection

G1 Incident Log
T18—Receiver SCBA

Serial number: 00E67808

Incident Start: 18/07/2023 22:25
Incident End: 18/07/2023 22:54

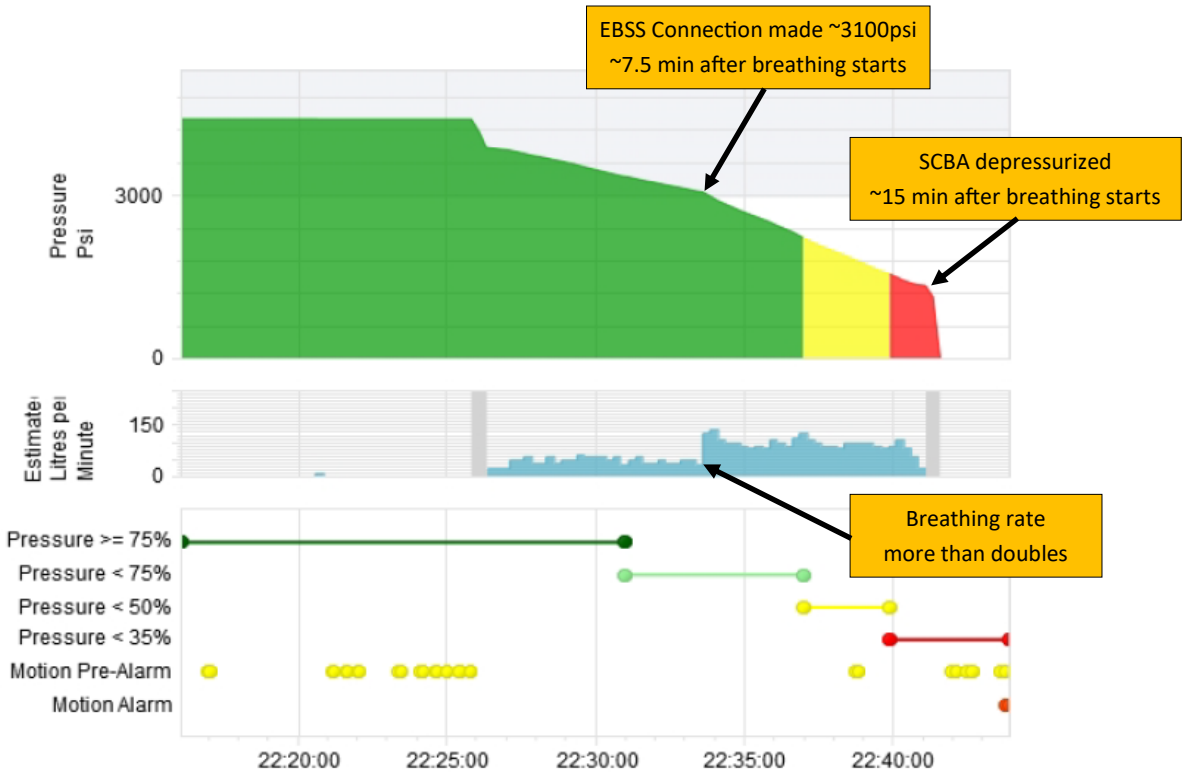


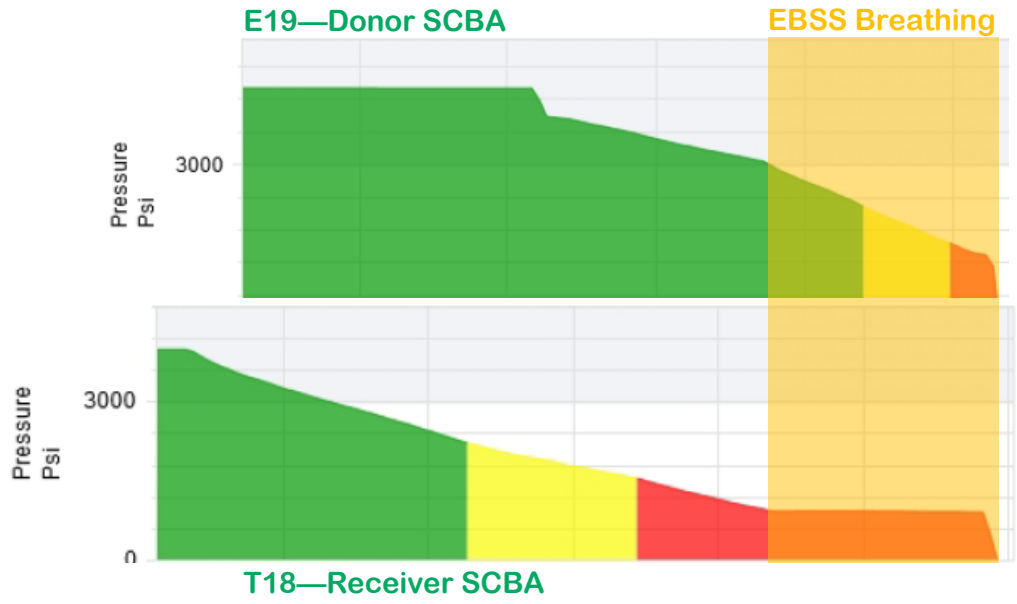
MSA
The Safety Company

G1 Incident Log
E19—Donor SCBA

Serial number: 00E6768F

Incident Start: 18/07/2023 22:16
Incident End: 18/07/2023 22:43





APPENDIX C—TRAINING RECORDS

The following training records are listed for key positions during this incident. This is not an all-inclusive record of all trainings attended by the individuals listed; rather, it is a snapshot of the certifications each member holds as confirmed by the Maryland Fire Service Professional Qualifications Board. Most certifications held are credentialed at the national level through either the National Board of Fire Service Professional Qualifications (NBFSPQ, "Pro-Board"), or the International Fire Service Accreditation Congress (IFSAC).

E56 Officer-in-Charge (Initial Incident Commander)

NFPA 1001, Firefighter I and II
NFPA 1021, Fire Officer I and II
NFPA 1006, Vehicle Machinery Rescue Technician, Confined Space Rescuer I and II, Surface Water Rescue Technician, Rope Rescue Technician, Structural Collapse Technician, and Surface Water Technician
NFPA 472, Hazardous Materials Awareness, Operations, and Technician
NFPA 1041, Fire Instructor I, II, and III
NFPA 1521, Incident Safety Officer, Incident Safety Officer-Fire Suppression, Hazmat Operations and Technical Rescue
NFPA 1002, Driver/Operator Aerial, Tiller, Pump, and Mobile Water Supply

Acting Battalion Chief 2 (Second Incident Commander)

NFPA 1001, Firefighter II
NFPA 1021, Fire Officer I, II, and III
NFPA 1041, Fire Instructor I
NFPA 1002, Driver/Operator Aerial, Tiller, Pump, and Mobile Water Supply
NFPA 1031, Fire Inspector I

Deputy Chief 3 (Third Incident Commander)

NFPA 1001, Firefighter I and II
NFPA 1021, Fire Officer I, II, III, and IV
NFPA 1006, Vehicle Machinery Technical Rescuer I and II
NFPA 472, Hazardous Materials Awareness and Operations
NFPA 1041, Fire Instructor II and III
NFPA 1521, Incident Safety Officer, Health and Safety Officer, Incident Safety Officer-EMS Operations, and Technical Rescue

T18 Officer-in-Charge (MAYDAY Firefighter)

NFPA 1001, Firefighter I and II
NFPA 1021, Fire Officer I, II, and III
NFPA 1006, Vehicle Machinery Rescue Technician
NFPA 472, Hazardous Materials Operations, and Technician
NFPA 1041, Fire Instructor I, II, and III
NFPA 1002, Driver/Operator Aerial, Tiller, Pump, and Mobile Water Supply
NFPA 1031, Fire Inspector I

T18 Driver

NFPA 1021, Fire Officer III
Incident Safety Officer-Fire Suppression

T18 Outside Vent Firefighter

NFPA 1001, Firefighter I and II
NFPA 1021, Fire Officer I and II
NFPA 1006, Vehicle Machinery Rescue Technician I and II, Confined Space Rescuer I and II, Surface Water Rescue Technician, Rope Technical Rescuer I and II, Surface Water Technical Rescuer I and II, Trench Technical Rescuer I and II
NFPA 472, Hazardous Materials Awareness, Operations, and Technician
NFPA 1041, Fire Instructor I, II, and III
NFPA 1521, Incident Safety Officer, Incident Safety Officer-Fire Suppression, Hazmat Operations and Technical Rescue
NFPA 1002, Driver/Operator Aerial, Tiller, Pump, and Mobile Water Supply

T18 Search Firefighter

NFPA 1021, Fire Officer I
NFPA 1002, Driver/Operator Aerial and Tiller

DFM 2 (Initial Safety Officer)

NFPA 1001, Firefighter II
NFPA 1021, Fire Officer I, II, III, and IV
NFPA 472, Hazardous Materials Technician
NFPA 1041, Fire Instructor I
NFPA 1521, Incident Safety Officer-Fire Suppression and Hazmat Operations
NFPA 1031, Fire Inspector I, II, and III, Plan Examiner I and II

E19 Officer-in-Charge (RIT Officer)

NFPA 1001, Firefighter I and II
NFPA 1021, Fire Officer I and II
NFPA 472, Hazardous Materials Operations
NFPA 1041, Fire Instructor I
NFPA 1002, Driver/Operator Aerial, Tiller, and Pump
NFPA 1031, Fire Inspector I

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