

Presented to
The Honorable Sheila Dixon
Mayor of the City of Baltimore

Independent Investigation Report

The Baltimore City Fire Department
Live Fire Training Exercise
145 South Calverton Road
February 9, 2007

DISCLAIMER

Two Federal entities participated in the development of this report, the Bureau of Alcohol, Tobacco, Firearms and Explosives (Baltimore field office) and the United States Fire Administration.

Both of these organizations share a mission and commitment to *“provide assistance and support to State and local governments”* which is reflected by their respective and substantial contributions of staff and resources to this effort.

It should be noted, however, that the results and descriptions of this incident investigation, as detailed herein, do not expressly reflect the opinions, policies, or investigative methodologies of either of the participating Federal agencies.

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Appendices – Volume II

Appendix A – National Fire Protection Association 1403 – 2002 Edition – *The Standard on Live Fire Training* - This standard is reprinted under limited license as an attachment to an original copy of this report. No further copies may be made.

Appendix B – Division Chief Kenneth Hyde's Documentation

Appendix C – Transcript of Radio Transmission of Training Exercise on February 9

Appendix D – BCFD Manual of Procedure 602-8, Rapid Intervention Team

Appendix E – Captain William Martin's Fire Investigation Bureau Preliminary Report

Appendix F - Lion Apparel Report on Racheal Wilson's Turnout Gear

Appendix G – BCFD Fire Academy Testing Policy

Appendix H – Series of Emails to and from Deputy Chief Theodore Saunders

Appendix I – BCFD Manual of Procedure 106-3, Shift Safety Officer-Duties

Appendix J – Emails between Division Chief Kenneth Hyde and Battalion Chief William Jones on February 7

Appendix K – BCFD Manual of Procedure 601, Fireground Operations and Command

Appendix L – BCFD Manual of Procedure 602, Fireground Operations and Command-Staging

Appendix M – BCFD Manual of Procedure 602-6, Fireground Evacuation Plan

Appendix N – BCFD Manual of Procedure 622-3, Personal Alert Safety System

Appendix O – BCFD List of Personnel at 145 South Calverton Road – February 9

Appendix P – Special Report from Lieutenant Michael Savino to Chief William Goodwin, February 15

Appendix Q – Text Message Sent To Multi-Alarm Page Group Regarding Firefighter Injuries During February 8 Training Exercise

Appendix R – Investigative Interview Transcriptions

Appendix S - Biographical Profiles of Members of the Investigative Team

In Memoriam

This report is dedicated to the memory of Firefighter Paramedic Apprentice Racheal Wilson, who tragically lost her life while pursuing a dream of serving the citizens of Baltimore. It is hoped the events of that fateful day will never be repeated, and that Racheal's sacrifice will help foster a culture of safety that will save the lives of firefighters throughout the country.



Introduction

On February 9, 2007, the City of Baltimore and the Baltimore City Fire Department (BCFD) experienced a tragic loss when Racheal Wilson, a Firefighter Paramedic Apprentice (FPA) and a member of FPA Recruit Class 19, suffered fatal injuries during a training exercise. The BCFD initiated an investigation of the incident and released its preliminary report on February 22, 2007. The report listed 36 potential violations of the National Fire Protection Association's (NFPA) 1403, *Standard on Live Fire Training Evolutions*, 2002 Edition.

On February 22, 2007, The Honorable Sheila Dixon, Mayor of Baltimore, announced during a press conference that she was initiating an independent investigation into the events that occurred on February 9. Mayor Dixon requested the assistance of the Howard County Department of Fire and Rescue Services (HCDFRS) and the U.S. Department of Justice's Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) to investigate the incident.

R. Chris Shimer, Deputy Chief of HCDFRS Emergency Medical Services and Training Section, was chosen by Mayor Dixon to lead the investigation, with support from Gregory Gant, Special Agent in Charge of the Baltimore Division of the ATF. The investigation was initiated on February 26 and concluded with the presentation of this report to Mayor Dixon.

The investigative team found many of the same violations and contributing factors as were noted in BCFD's preliminary investigation. The team determined that there were 50 issues which it considered to be violations of NFPA 1403 and other related factors that contributed to this tragic event. Those violations and contributing factors are detailed in the ensuing report.

Acknowledgements

As the lead investigator, I was given the daunting task of assembling a team and investigating the death of a recruit that occurred during a training exercise. This was a difficult task, to say the least, as it involved not only the death of a firefighter and injuries to others, but also required that the team look at another department's actions, leadership, personnel, culture, policies and procedures. Given the consequence of the incident and the media coverage it received, both on local and national levels, the team realized the time and effort that would be required to ensure that the investigation was thorough and complete would be substantial.

I would be remiss if I did not acknowledge the members of the investigative team and others who contributed in some manner to the investigation and completion of this report. Their time and dedication was essential in gathering information that was used to compile the report.

The investigative team consisted of the following members of the Bureau of Alcohol, Tobacco, Firearms and Explosives: Group Supervisor Donald Toll, Special Agent/Certified Explosives Specialist Rachel Ehrlich-Ellis, and Special Agent/Certified Fire Investigator Gregg Hine. Their participation and investigative background was extremely helpful during the entire process. Also participating were two members of the United States Fire Administration: Kenneth Kuntz, Fire Studies Specialist and Kathleen Carter, Program Support Specialist. Their expertise, knowledge, and access to resources at the United States Fire Administration were invaluable. A brief biographical sketch of each team member is located in Appendix S.

Others who were involved and contributed to the investigation in some manner include Special Agent in Charge Gregory Gant, Assistant Special Agent in Charge David McCain, Special Agents Terry Mortimer, Noah Slackman, Mario Dispenza, Photographer John Wheeler, Special Agent/Certified Fire Investigator Paul Gemmato, and Special Agent Matthew Varisco, all from the Bureau of Alcohol, Tobacco, Firearms and Explosives, and Daniel Madrzykowski, Fire Protection Engineer from the National Institute of Standards and Technology. The United States Secret Service, Forensic Services Division from Washington, D.C. assisted the investigative team by duplicating and enhancing audio and visual recordings and should be acknowledged as well.

I would also like to take the opportunity to thank Deputy Chief Theodore Saunders and the members of Baltimore City Fire Department's Fire Investigation Bureau for their cooperation throughout the investigation. Chief Saunders was designated as the Department's point-of-contact for the investigative team. The team made numerous requests for information and other items, all of which Chief Saunders fulfilled.

The Fire Investigation Bureau provided the investigative team with a great deal of information, including DVDs of the Baltimore City Fire Department's interviews with various personnel and information they had collected while compiling the preliminary investigation report. They also provided access to 145 South Calverton Road on three separate occasions and assisted the team at the site.

Executive Summary

Firefighter Paramedic Apprentice (FPA) Racheal Wilson succumbed to fatal injuries during a live fire training exercise on February 9, 2007, when she was unable to exit or be rescued from the building at 145 South Calverton Road. An investigation began almost immediately, as members of Baltimore City Fire Department's (BCFD) staff arrived shortly after the incident and began gathering information. In addition, a number of interviews were conducted later in the day with personnel directly involved in the incident. The BCFD released its preliminary report on February 22, 2007, citing numerous violations of NFPA 1403 and other factors that apparently contributed to Racheal Wilson's death.

On February 22, 2007, The Honorable Sheila Dixon, Mayor of the City of Baltimore, announced the initiation of an independent investigation into the incident. To conduct that investigation, she enlisted the assistance of the Howard County Department of Fire and Rescue Services and the Bureau of Alcohol, Tobacco, Firearms and Explosives. On February 26, the investigation began when Chris Shimer, Lead Investigator from the Howard County Department of Fire and Rescue Services (HCDFRS) and representatives from the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) met to develop a plan and assemble a team that would investigate the incident. On March 13, Kenneth Kuntz and Kathleen Carter from the United States Fire Administration (USFA) joined the team and participated throughout the remainder of the investigation.

Over the next several months, the team met regularly and had numerous discussions regarding the different aspects of the investigation. Each member read the documentation, viewed pictures, and watched videos that were provided to them by the BCFD. Members from the ATF assisted the National Institute for Occupational Safety and Health (NIOSH) while they conducted their investigation. This opportunity allowed some members of the team to interview the personnel involved in the training exercise during that inquiry. Subsequent to the NIOSH on-site activity, the investigative team also visited the BCFD's Training Academy, spoke to several instructors and students, and viewed documentation that was available pertaining to the incident. In addition, members of BCFD's Senior Staff were interviewed.

Other aspects of the investigation included the team interviewing several members of FPA Class 19, in order to gain insight and additional knowledge into the events of the training exercises on February 8 and 9, 2007, and Department training practices in general. Instructors who were assigned to the BCFD Training Academy during the fatal exercise and who were available to the investigative team were interviewed as well. The team also visited the Training Academy on two occasions to view the documentation that existed for the individual students, the class in general, and for the training exercises that occurred on February 8 and 9. In addition, multiple site visits of 145 South Calverton Road were conducted. A scale model of the buildings at 143 and 145 South Calverton Road was constructed at the USFA and used to depict the layout of the building and the location of fires, which facilitated the participant interviews.

Upon conclusion of the investigation, the team found the following:

- Numerous violations of NFPA 1403;
- Numerous violations of BCFD's Manual of Procedure Policies;
- Adjunct instructors had little to no prior instructional experience;
- Several instructors who led crews were not equipped with portable radios;
- A number of students did not have had adequate experience prior to participating in live burn exercises in acquired structures;
- Lack of documentation pertaining to progress or deficiencies in individual student files;
- Lack of documentation pertaining to the class in general at the Training Academy;
- Turnout pants worn by the victim had exceeded useful life; and,
- Physical fitness requirements to enter the Department are not validated, and, therefore, are not a viable physical ability screening process.

Detailed recommendations will be discussed later in the report but, in general, include the following:

- Adhere to NFPA 1403 guidelines at all times during live burn exercises in acquired structures and at the Training Academy's burn facilities;
- Adhere to the appropriate departmental policies and procedures when engaged in training activities;
- Develop and apply criteria by which personnel are designated as adjunct instructors and are chosen to assist with training exercises;
- Provide all instructors and others assigned to vital positions with portable radios and Personal Alert Safety System (PASS) devices;
- Ensure that all students have adequate experience with hose line evolutions in live burn exercises at the Training Academy prior to participating in live burns in acquired structures;
- Document competency attainment and deficiencies for required skills in each student's individual files;
- Develop a method of documenting daily class and individuals activities;
- Adopt a validated physical fitness evaluation that can be used for all potential recruits, such as the Candidate Physical Ability Test (CPAT);
- Promote a culture of safe operations that fosters the skill and experience necessary for competent performance;
- Develop a detailed plan for live fire training evolutions in acquired structures that demonstrate NFPA 1403 compliance and that must be reviewed and approved by the Chief of the Department prior to the training taking place;
- Provide all FPAs with serviceable personal protective equipment, including SCBA and PASS devices; and,
- Demand strict accountability and appropriate discipline for those who violate safety and training standards in all aspects of Department operations.

The Building

The Site and Building

The fatal live fire training exercise that is the focus of this investigative report took place at a vacant, publicly owned and condemned residential ‘acquired structure’ located at 145 South Calverton Road in southwest Baltimore, Maryland (USNG 18S UJ 57650 49809).

South Calverton Road is a one lane, one way, public thoroughfare (with parking areas on both sides of the street) approximately 30 foot wide, curb to curb, that extends diagonally to the northwest from its terminus at the intersection with the 2100 block of Frederick Avenue. The fatal incident structure was located on the northeast side of South Calverton Road approximately 100 feet from that intersection and approximately 100 feet from the nearest fire hydrant which was located on Frederick Avenue.

The aerial photo below depicts the structure’s location in relation to the nearest available hydrants (H-1, H-2, & H-3) to the scene. The hydrant designated H-2, due south of the building, was utilized to provide water supply for the live fire training exercise.



For the purpose of this report and consistency with the BCFD's incident command nomenclature the front of the building is designated as Side A, the portion that connected to the adjoining row home as Side B, the rear as Side C, and the longest wall of the structure that faced the alley as Side D.



(Source: Bureau of Alcohol, Tobacco, Firearms and Explosives)

The building was a modest residential three story, three bedroom, single family, row house that (prior to its designation as a vacant structure in June of 1999 and subsequent condemnation in January of 2004) had provided its occupants with approximately 1200 square feet of living space. It was fairly typical of all the other homes on the block, all of which shared a somewhat unusual construction feature in that the southwest facing front (A sides) of the buildings were constructed on an angle of approximately 45 degrees creating structures of a trapezoidal configuration, conforming to the diagonal direction of the street they face.

Three primary exterior walls of the structure, all three stories of the front (A) wall, the first and second stories of the rear (C) wall, and all three stories of the longest side (D) wall were constructed of standard 8 inch concrete block and included a red brick façade on the full three stories of the front (A) wall. These block walls combined with a three story, common brick side (B) wall abutting the adjoining structure.

All the interior walls were finished with common 2 inches by 4 inches vertical studs placed 16 inches on center with fiberglass insulation bats between them and were covered with standard gypsum wall board. The flooring was constructed of common 2 inches by 8 inches horizontal joists covered with 3 inches tongue and groove slats.

A small poured concrete porch with decorative iron railings rose approximately two feet to the front entrance way from the city sidewalk at curbside.

The southwest facing, front wall (A side) contained the front door to the residence at the midpoint of the angled wall and was flanked by windows on either side of the ground floor, the second and third floors contained three windows each which were of similar size and symmetrically positioned over the ground floor openings.

The northwest facing, brick side wall (B side) directly abutted the adjoining structure (143 South Calverton Road) and was approximately 36 feet in length on the first and second stories and approximately 17 feet on the partial third floor level.

The northeast facing, rear wall (C side) was approximately 12 feet in width and included a rear entrance and window at the ground level, a window on the second story positioned over the rear entrance and one on the inset third floor level which was similarly positioned. The window on the third floor level overlooked the slightly receding sloped second story roof and back yard. This third floor window served as the only utilized egress route from the structure other than the doorways at the front and rear of the ground floor during the training exercise.

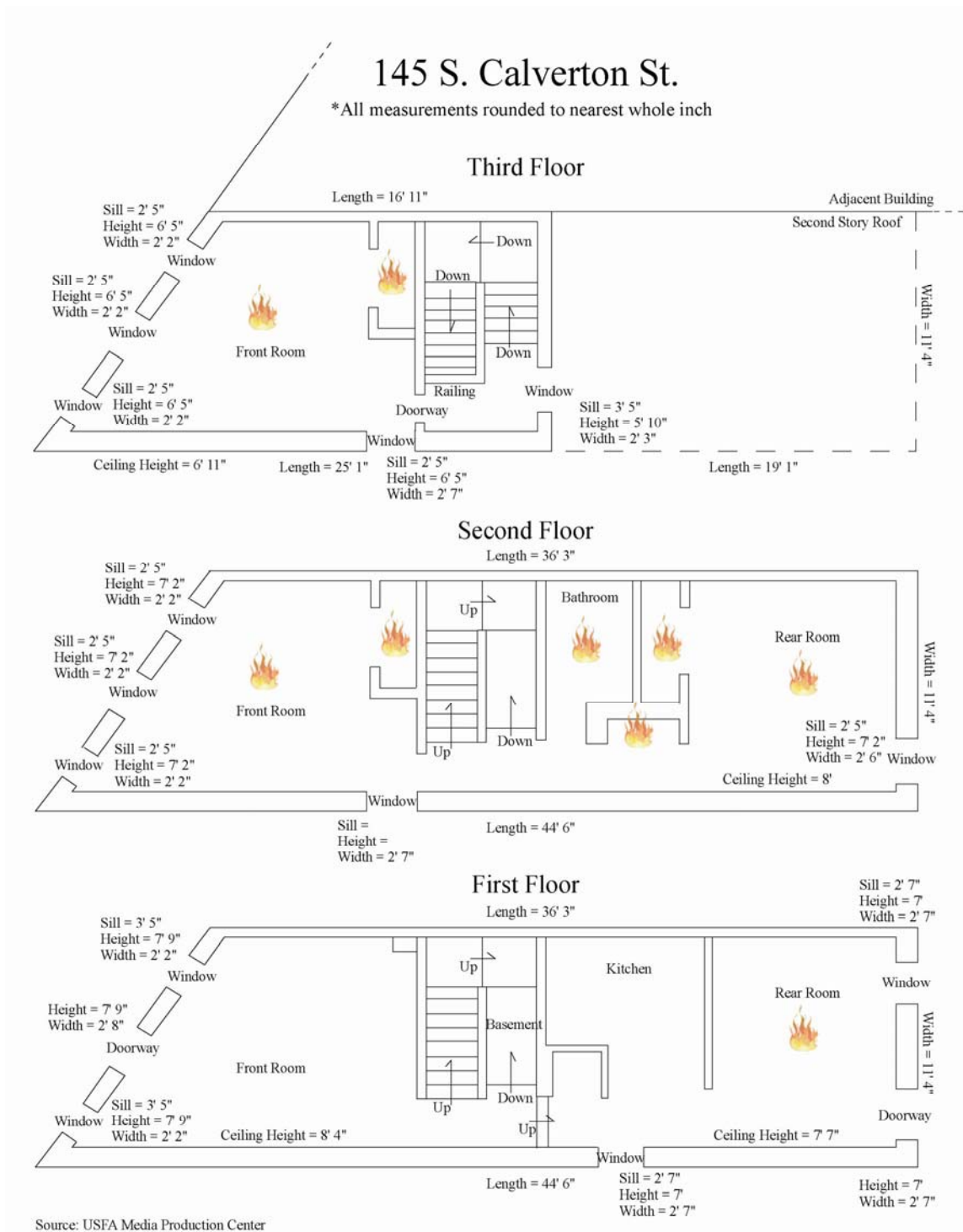
The southeast facing side wall (D side) was approximately 44 feet in length on the first and second stories and approximately 25 feet in length on the partial third floor level. This wall included two windows on the first floor (one of which was sealed shut with concrete block and bricks), three windows on the second floor, two of which were positioned directly above the first floor openings, and one window on the third floor level which was positioned above one of the second story windows. This side of the structure adjoined a 10 foot wide alley that extended beyond the property line at the rear of the parcel.

The first floor of the structure included the front entrance way into a living room at the A side of the building, a central parallel stairway shaft (that extended from the basement to the third floor), a small kitchen area, a rear room and closet which included an exit way to the rear yard and a hallway that connected the front and rear rooms and afforded access to the stairway and kitchen.

The second floor mimicked the first with respect to the general layout, except that there were no exterior access ways, the front room included a closet which was not present on the floor below and the area over the kitchen was configured as the bathroom.

The third floor only extended from the front of the structure to the stairway and included a single room with closet similar to the front room on the second floor and a short hallway between the stairs and the entrance to the front room. At the rear of the hallway was a window with a sill 41 inches from the floor and 27 inches wide that hereafter is referred to as the "exit window."

The structure's floor plans are detailed below:



The property was managed by the Housing Authority of Baltimore City (HABC). The Fire Department came into possession of the building through a series of electronic messages between Deputy Chief Theodore Saunders of the Fire Department and Michael Braverman and Jerome Dorich of the Department of Housing and Community Development. Chief Saunders' original request was sent to Michael Braverman on January 2, 2007, and on January 3, 2007, Jerome Dorich responded to Saunders, providing 145 South Calverton Road, among others, as a possible location to be used for training purposes.

The Incident

Background and Preparation for the Burn

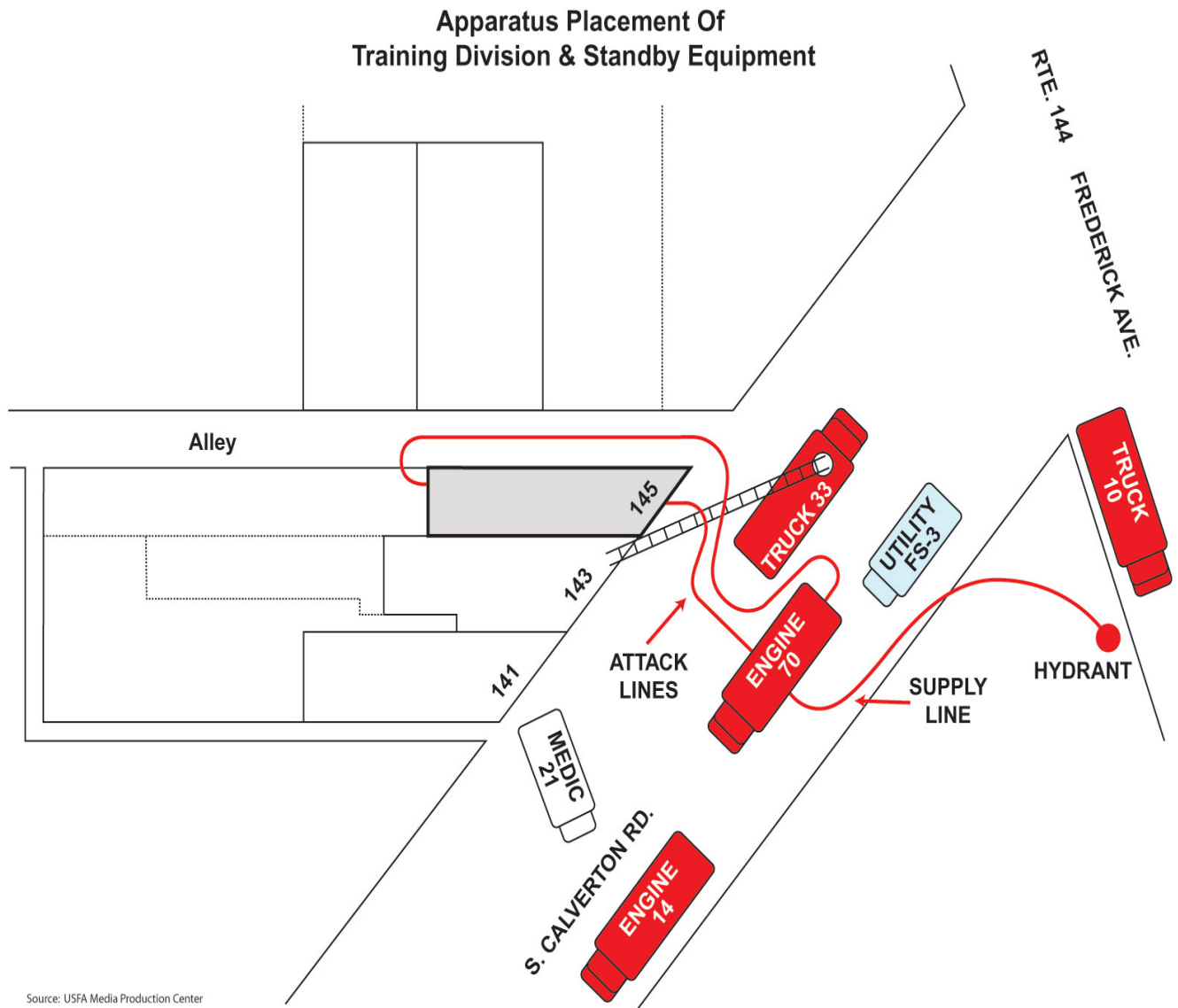
The incident occurred on February 9, 2007, at 145 South Calverton Road. Twenty-two members of FPA Recruit Class 19 were transported to that location to participate in a live burn exercise. Also present were five instructors assigned to the Training Academy and six adjunct instructors who were brought in from various companies by the Training Academy staff to assist with the exercise. Medic 21, staffed with two paramedics, was assigned to stand-by at the scene to provide medical assistance, if necessary.

In addition, Battalion Chief 3, Truck 10, and Engine 14 were made aware that the exercise would occur in their first-due response area and stood by to observe. They remained in service for emergency incidents, but were later deployed on the training exercise when conditions deteriorated and the rescue effort took place.

The temperature at Baltimore Washington Thurgood Marshall International Airport that day was reported to be 26 degrees Fahrenheit at 11:54 a.m. The wind was noted to have been out of the Northwest at 17.3 miles per hour, with gusts up to 25.3 miles per hour. The documentation provided to the BCFD investigators indicated a wind speed at 20 miles per hour, and contains an abbreviation that suggests that the wind was blowing in a southwesterly (C Side) direction. If BCFD's report regarding wind direction is correct, the effect could have contributed significantly to the fire growth and propagation by pushing the heat and smoke from the structure to the rear.

Truck 33, an aerial ladder from the Training Academy, was positioned in front of 145 South Calverton, designated as Side Alpha, facing southeast. Engine 70, a pumper from the Training Academy, also was positioned on Side Alpha, facing northwest in the area in front of 143 South Calverton. The fire hydrant used was approximately 100 feet south of the engine, west of the corner of South Calverton Road and Frederick Avenue. Another hydrant, located approximately 150 feet north on South Calverton was not utilized.

Medic 21 was positioned near the Training Academy's engine backed into the curb on South Calverton, facing northwest (Diagram 1).



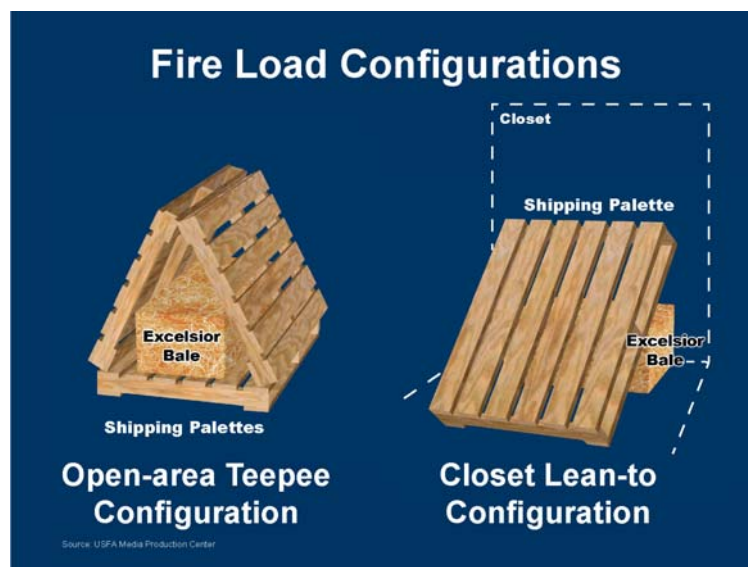
Members of the Training Academy staff who participated in the exercise included Division Chief Kenneth Hyde, Lieutenants Joseph Crest and Barry Broyles, Emergency Vehicle Drivers (EVD) Angela Jasper and Norman Rogers. The adjunct instructors were Captain Louis Lago, Lieutenant Eugene Jones, EVDs Michael Hiebler, John Lotz, and Ryan Wenger, and Firefighter/Paramedic (FF/PM) Tarnisha Lee. FF/PM Kenneth Van Dommelen and Paramedic Theresa Smith-Dixon staffed Medic 21.

Documentation provided by BCFD from Chief Hyde indicated Lieutenant Crest was Incident Commander and Hyde himself was the Safety Officer. The Ignition Officer was noted

to be Lieutenant Jones. However, the investigation later revealed that Jones was not involved in the ignition of any of the fires. Lieutenant Broyles was assigned as the Rapid Intervention Team (RIT) Officer.

EVD Norman Rogers and FF/PM Tarnisha Lee were directed to ignite fires in the building. Other Training Academy staff and adjunct instructors were used as crew leaders, pump operators, or provided general support to the operation. A detail of staff and student assignments was included in the initial BCFD investigation, Appendix E.

Division Chief Hyde noted in the documentation provided (Appendix B) that eleven bales of excelsior and ten pallets were used for the exercise. However, the presence of one of each fire load configuration in each of the larger rooms suggests at least twelve pallets were utilized in the set fires. These materials were distributed in various rooms throughout the structure by recruits and eventually were ignited. According to those involved with distributing the materials and setting the fires, two load configurations were used in each of the larger rooms. In one configuration, a pallet was laid flat on the floor as a base, with two others angled on the base, to form a “teepee” type construction. Excelsior was placed within the open area of the configuration. Another configuration used was the leaning of a single pallet against a wall, then placing excelsior between the pallet and the wall (Shown below).



The building had been used several weeks prior for training purposes when students were assigned to practice forcible entry, and horizontal and vertical ventilation. Ceilings and portions of the walls had been ‘removed’ on the second and third floors of the structure during that exercise. On February 9, 2007, in addition to the pallet and excelsior configurations noted earlier, excelsior was also placed in open areas of the ceilings and heat vents. Others reported pulling the wallboard away from the studs and stuffing excelsior behind it. It was reported that a piece of plywood had been placed over the opening in the roof, but it did not completely cover the roof opening that had been made during the earlier exercise.

In addition to the materials noted above used for burning in the structure, a large amount of debris was present in the rear room on the first floor. A later visit to the structure revealed the following materials:

- One automotive tire;
- Two full size mattresses, measuring approximately 48 inches wide by 74 inches in length;
- One twin size mattress;
- One padded, foam rubber chair;
- One record player;
- One video cassette recorder;
- One television;
- Tree branches; and,
- Other discarded combustibles.

The picture below shows the debris that was removed from the first floor rear room



Interviews with various personnel revealed that a briefing was held by Lieutenant Crest and Division Chief Hyde for all instructors and support staff prior to the training exercise. The instructor staff was told that fires would be present in locations on the second and third floors of the building only. A briefing was not held for the students. A walk-through of the structure was not conducted by any of the participants, nor were emergency exits designated prior to the start of the exercise.

The Crews and Their Assignments

The first crew to enter the building was designated as Engine 1. They were led by EVD Ryan Wenger, who was contacted to assist with the training exercise as an adjunct instructor. He is regularly assigned to Truck 10. His crew consisted of Paramedic Stephanie Cisneros and FPAs Ben Lichtenberg, Angel Perez, and Racheal Wilson. All students were equipped with PASS devices, but Wenger was not.

Crest's instructions to Wenger were to proceed to the third floor. Wenger asked to confirm those instructions and Crest again told him to go to the third floor that a second hose line would be coming in right behind him. Wenger advised in his interview that the orders he received were what he would follow. He was not provided with a radio prior to entering the structure, nor did he request one.

Wenger then relayed the assignment to his crew. The three surviving members of Engine 1's crew all confirmed during interviews that Wenger told them they were to go to the third floor. FPA Angel Perez asked if they were to extinguish fires as they saw them, which would be considered a common and appropriate practice, but Wenger answered by telling them they were to go straight to the third floor, as directed by Lieutenant Crest.

The second engine crew was led by EVD Michael Hiebler and was designated as Engine 2. Like Wenger, Hiebler was contacted and used as an adjunct instructor. His normal assignment is also Truck 10. He was assigned FPAs Wayne Robinson, Kelsey Norman, Jason Stevens, and Jason Wright as his crew. Their instructions were to take a hose line, enter the rear of the structure, and proceed to the second floor. As with Wenger and Engine 1, Hiebler was also not provided with a radio. Hiebler was not equipped with a PASS device, but the FPAs assigned to his crew were all wearing them.

Hiebler gave his crew their assignment and advised them that the length of the hose line, if they entered through the rear of the structure, would not be of sufficient length to allow them to proceed to the second floor. Hiebler told his crew they would need to add three additional sections of hose to the existing hose line before they entered the structure. The crew then assembled the necessary length of hose prior to the start of the exercise.

The third engine company was Engine 3 and was led by Lieutenant Barry Broyles. Broyles' normal assignment is as an instructor assigned to the Training Academy. His crew included FPAs Daniel Miller, Adam Polonski, and Erica Wilson. Their assignment was to function as RIT, which required some preparation to fulfill that task. Broyles was equipped with a radio. Although the FPAs had a PASS device, Broyles did not. He advised the crew they would be RIT, but did not explain to them the tasks involved, nor did he provide them with a list of equipment they would need to utilize, if deployed.

The crew that was designated as Truck 1 was led by Captain Louis Lago, who was also designated as an adjunct instructor. His normal assignment is Engine 5. His crew consisted of

FPA's Jason Neisser, Padraic Shea, John Stevens, and Tina Strawsburg. They were told to place ladders against the front of the building, and then enter the structure for search and rescue.

The FPA's assigned to Truck 1 reported that they asked Captain Lago questions prior to entering the structure, but his response was that there was no time for questions and ordered his crew to carry out their assigned tasks. At least one student asked an unidentified individual if they could walk through the building, or at least look inside and was told they could not due to the fact the exercise had already begun. None of Truck 1's crew members wore PASS devices.

The crew that was assigned as Truck 2 was led by Lieutenant Eugene Jones, an adjunct instructor normally assigned to Truck 30. FPA's Shachar Cohen, Chad Snyder, and Andrew Wolf made up the remainder of Jones' crew. The assignment for this crew was to proceed to the rear of the building and perform their assignments from that location. Jones had a radio with him. Lieutenant Jones indicated in his BCFD interview that all of his crew wore PASS devices.

The remaining truck, designated as Truck 3, was led by EVD John Lotz, an adjunct instructor also normally assigned to Truck 30. FPA's Kevin Larkins, Mark Scroggins, Brandon Thibeault, and Shonnie Thorpe comprised the remainder of the crew. The crew was told to climb the aerial ladder to the adjacent roof and ventilate the involved structure. Lotz was given a radio prior to the start of the exercise.

Igniting the Fires

FF/PM Tarnisha Lee and EVD Norman Rogers were designated as "stokers" (Ignition Officer), the individuals who would light the fires in the dwelling. A briefing, as noted earlier, was held in front of 145 South Calverton Road for instructors, adjunct instructors, and ignition officers. The briefing was held by Chief Hyde and Lieutenant Crest. Lieutenant Crest advised that there would be fires set on the second and third floors. There was no mention of a fire intended to be set on the first floor.

Lieutenant Crest accompanied by Lee and Rogers, entered the building through the rear door, and then proceeded to the third floor. Under Crest's direction, they ignited at least two fires on the third floor then moved to the second floor. Rogers stated that he lit two fires in the front room on the second floor, while Lee lit fires in the bathroom and a room to the rear of the house. During her interview with the investigative team, Lee was unsure as to the number of fires or locations at which she set them. At that point, they were all on the second floor when Crest ordered them to exit the building. As they were exiting, a basketball sized bundle of excelsior was present on the second floor landing and Crest told Rogers to light it, which he did.

Lieutenant Crest was the first to exit the structure, followed by Lee, then Rogers. Rogers took his flare out of the building and placed it in a wet area in the street in front of the building. Lee stated that she took her flare out of the building and also placed it in the street in front of the building. Lee and Rogers both denied lighting a fire on the first floor and they did not report being instructed to do so. Neither Lee nor Rogers were equipped with a radio or a hose line

while in the building, nor was the Safety Officer (Hyde) present in the structure during the ignitions.

Once the “stokers” had set the fires and exited the structure, the exercise was begun when a simulated dispatch by Lieutenant Crest, announcing a building fire at 134 Elder Road. Then he corrected the location to 134 South Calverton Road. The written transcript of the transmissions that occurred via radio can be found in Appendix C. Although Crest had briefed instructors that there would be fires on the second and third floors, and accompanied the stokers while they set the fires, his simulated dispatch to the apprentice crews reported fires on the first and second floors. Shortly thereafter, the crews deployed and began carrying out their assignments.

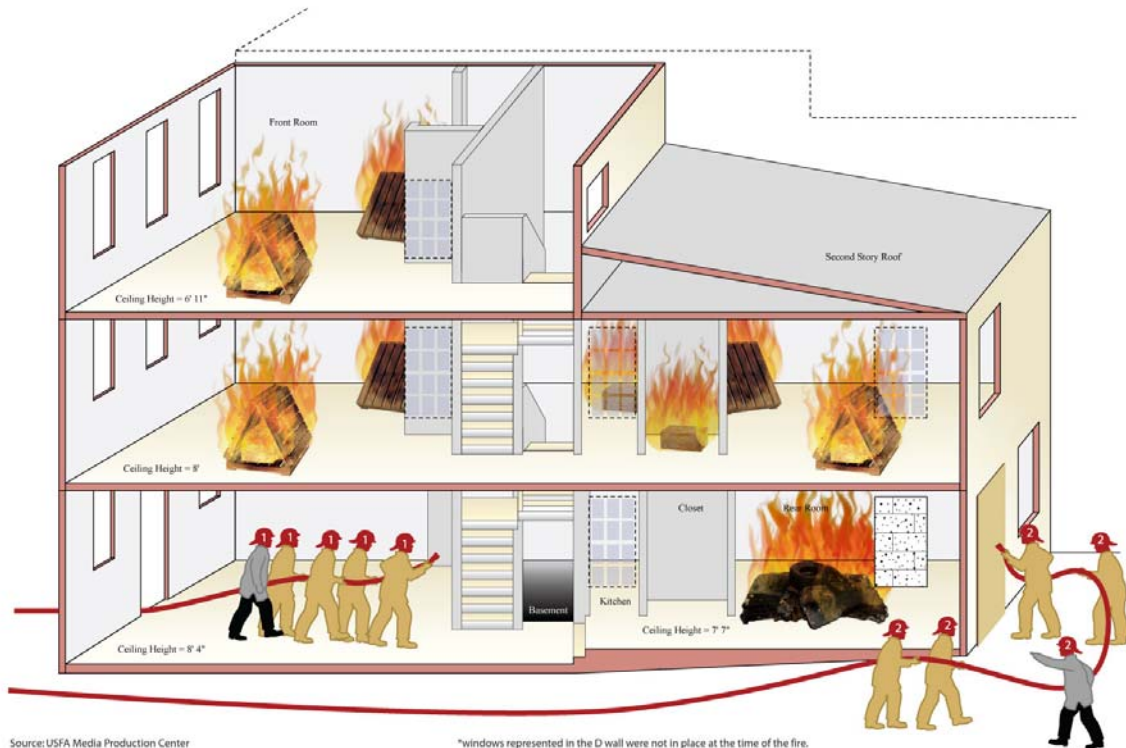
Based on the interviews with both the instructors and students, it appears as though at least several of the crews were not prepared to enter the building after the fires were ignited. The amount of time that had elapsed from the time the fires were set to the point at which crews actually entered the building varied, depending on the individuals being interviewed and their assignments. Most stated several, or a few minutes when asked how much time had elapsed. The delay allowed the fires to burn uncontrolled throughout the structure until the students and instructors entered the building and began suppression efforts.

Actions of the Crews

Engine 1 initially followed the instructions they were given and were the first to enter the building. EVD Ryan Wenger led the crew with Racheal Wilson on the nozzle, or “pipe”, followed by Stephanie Cisneros, Angel Perez, and Ben Lichtenberg. The crew took a 1 ¾ inch hose line equipped with a combination nozzle and entered the building through the front door. None of the members of the crew reported seeing a fire on the first floor when they entered the structure. As Engine 1 personnel entered the front room, Engine 2 was pulling hose to the rear of the building in preparation of entering through the back door, as shown in Figure 1.

Figure 1

Engine 1 entering structure, Engine 2 preparing to enter the rear.

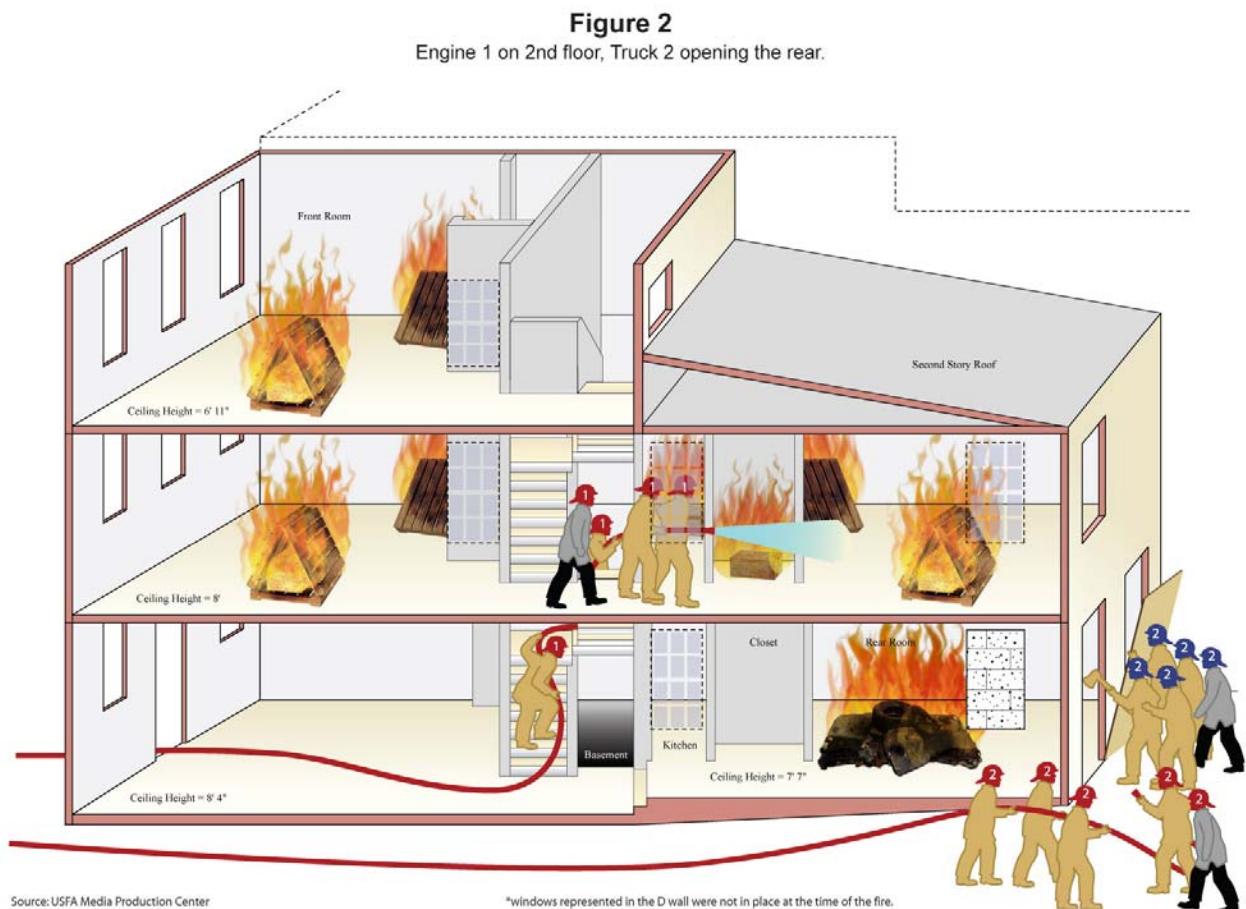


During interviews conducted by the BCFD, there were conflicting statements between the crew and the pump operator as to whether or not the hose line was charged prior to Engine 1 personnel entering the structure. FPA Perez and Paramedic Cisneros both stated that the hose line was not charged when they entered the building. Perez stated that the line was charged when they approached the second floor. Cisneros stated that EVD Wenger told them they would go as far into the structure as they could without charging the hose line.

EVD Angela Jasper, the pump operator, stated that the hose line was charged before the crew entered the structure. The engine was positioned in a manner that would place the pump panel on the opposite side of the apparatus from the fire building. Therefore, Jasper would not have been able to observe the actual activity that was occurring while she operated the pump. In addition, Wenger did not have a radio, so he would have been unable to advise Jasper to charge his line. There was no radio communication at any time that advised Jasper to charge a hose line.

These facts could support EVD Jasper's account that the hose line was charged before personnel entered the building. However, it could also be surmised that Jasper simply charged the hose line when she felt enough time had elapsed that the crew would be ready for water. Aside from the question as to why a crew would enter a burning structure without a charged hose line, whether it was charged or not (notwithstanding the conflicting statements) was not considered a contributing factor to this casualty incident.

The crew of Engine 1 made their way up the stairs to the second floor. Meanwhile, Engine 2's crew had stretched a hose line (also a 1 ¾ inch with a combination nozzle) to the rear and waited until the crew of Truck 2 had simulated a forcible entry through the rear door (Figure 2). Once they reached the second floor, the crew encountered severe fire conditions. Although their instructions were to go to the third floor, Wenger did not feel comfortable proceeding without extinguishing some of the fire on the second floor. He told Wilson to open the nozzle and put water on the fire. When opening the nozzle, Wilson fell, so Wenger took the hose line and confined the fire to the point where he felt he could proceed to the third floor. He gave the hose line back to Wilson and the crew continued to proceed to the third floor.

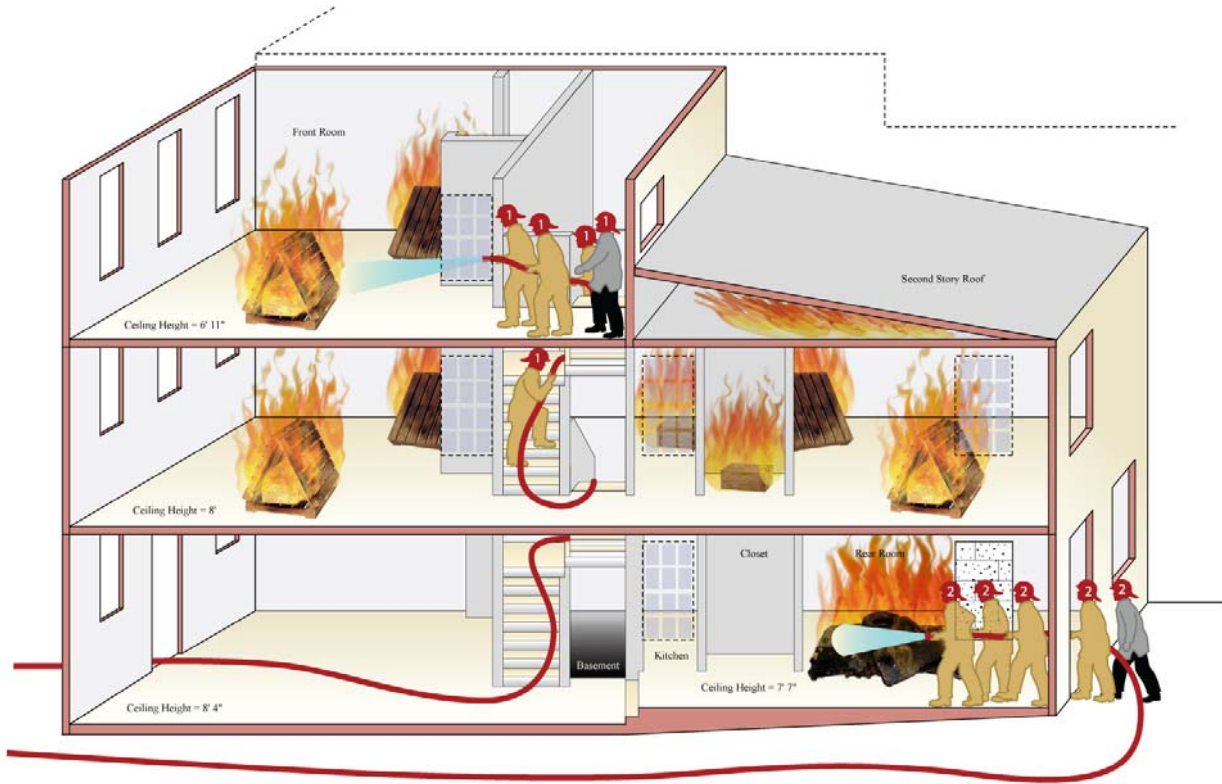


Wenger, Wilson, and Cisneros proceeded to the third floor landing. Perez and Lichtenberg remained on the landing between the second and third floors, advancing the hose line to Wilson and Cisneros as needed.

At this point Engine 2 entered the rear of the structure and encountered a rubbish fire in the back room that was not discussed during the briefing (Figure 3). Wenger stated that the heat at the third floor landing was intense, so he leaned out the window in an effort to gain an understanding of the fire conditions. Without a radio, he had no means to communicate his observations or circumstances with the Incident Commander or receive further instructions.

Figure 3

Engine 1 on 3rd floor, Engine 2 attacking fire 1st floor rear.



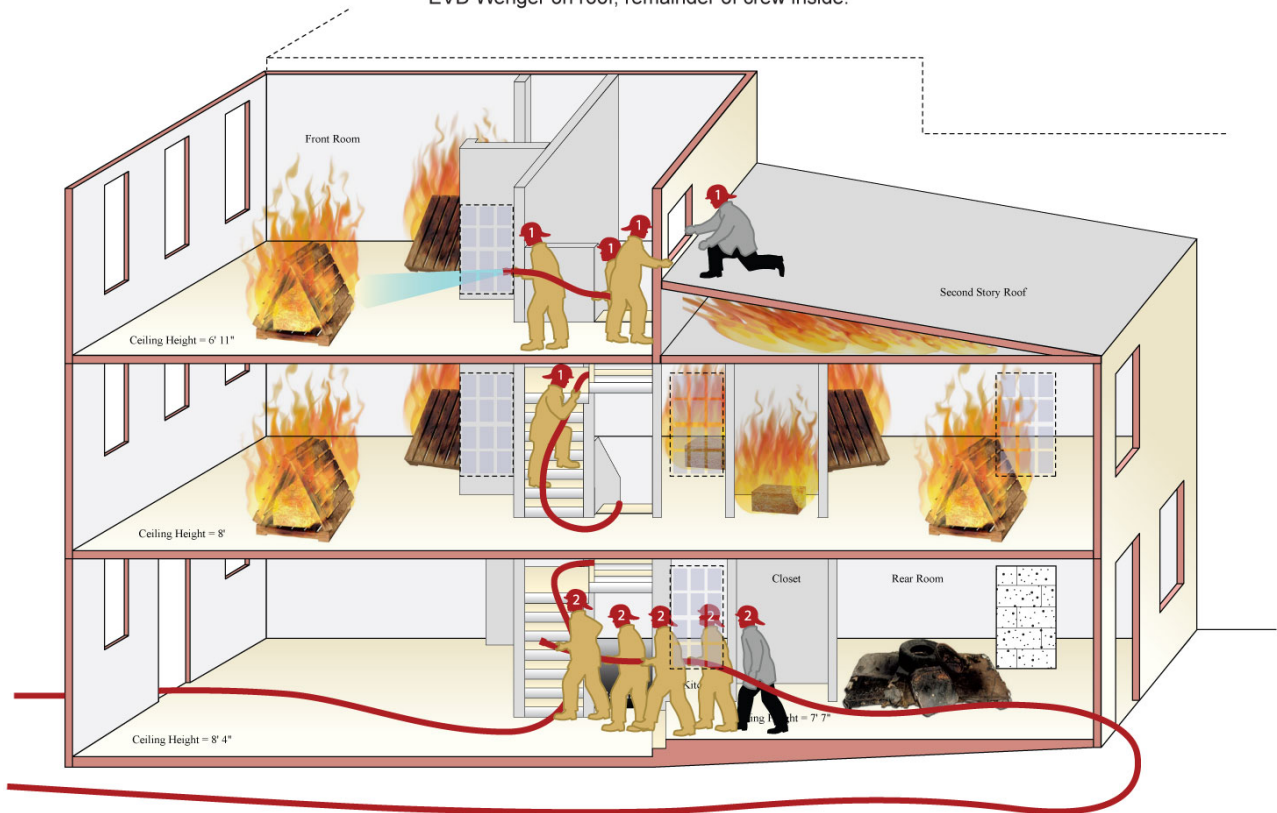
Source: USFA Media Production Center

*windows represented in the D wall were not in place at the time of the fire.

Cisneros stated that she told Wenger the second floor was well involved in fire, but he did not acknowledge her. She was told to go down the steps to pull more hose and at that time, she felt her legs starting to burn from the heat. She proceeded to the third floor landing and told Wenger she had to get out of the building, due to the intense heat. At that time, Wilson still had the nozzle and was near the window. Neither Cisneros nor Wenger reported that Wilson appeared to be in any distress at that time. EVD Wenger then climbed through the 'exit' window on the third floor to the second floor roof. Engine 2 had, by this time, extinguished the fire on the first floor and was proceeding to the second floor (Figure 4).

Figure 4

Engine 1 personnel on 3rd floor and Engine 2 advancing to 2nd floor.
EVD Wenger on roof, remainder of crew inside.



Source: USFA Media Production Center

*windows represented in the D wall were not in place at the time of the fire.

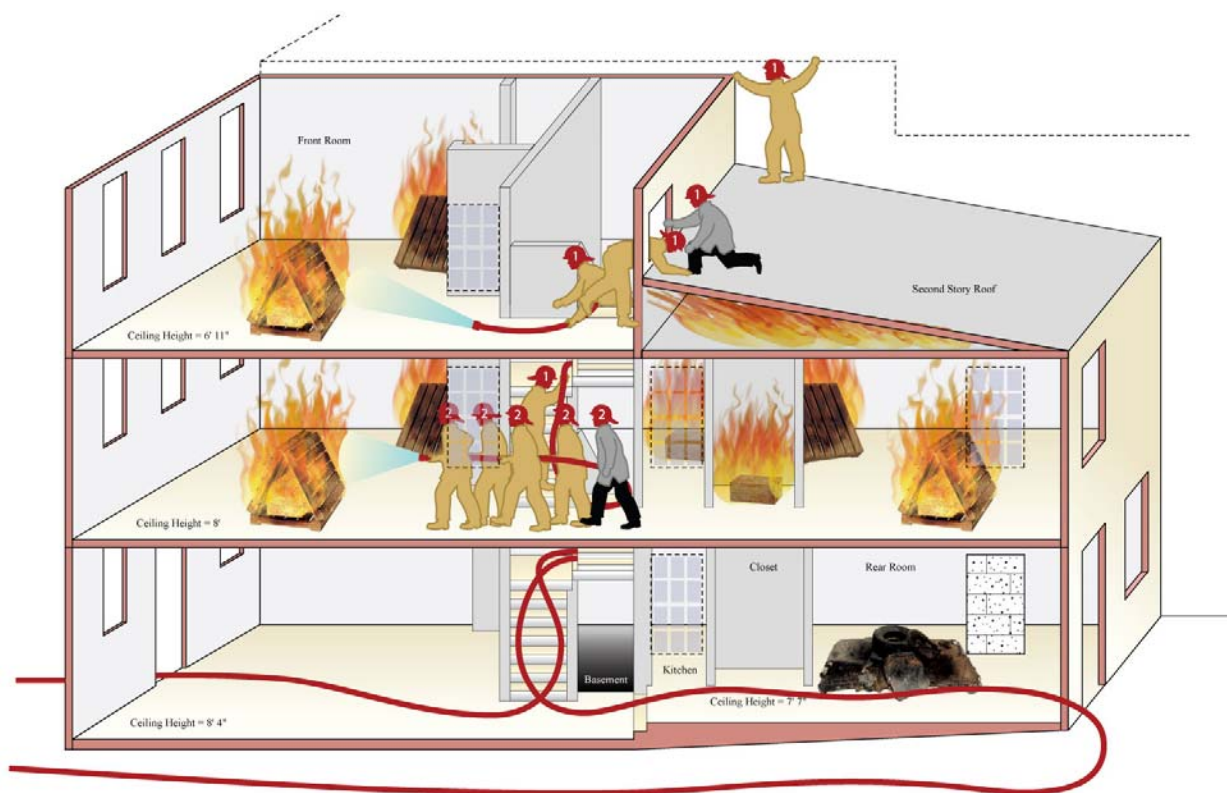
Wenger then assisted Cisneros through the same window and onto the second floor roof. Once out of the building and on the second floor roof, Cisneros was hoisted to the third floor roof by the crew of Truck 3. She told them that Wenger needed help and they jumped down to the second floor roof to assist.

Perez and Lichtenberg remained on the landing between the second and third floors. They noticed the hose line was no longer advancing and were concerned with what was occurring. Perez reported a “rush of air” followed by fire that rushed past them. He and Lichtenberg proceeded up the stairs and Perez made it to the top of the stairs. He saw Wilson at the window, with one leg on the window sill, trying to get out of the building. He did not see Wenger or Cisneros, as they had already exited the dwelling.

According to Perez, Wilson saw him at the landing and warned him to retreat and get out of the building. Perez noticed that she had abandoned the hose line and the nozzle was still open, flowing water (Figure 5). He and Lichtenberg heeded Wilson’s warning and went back down the stairs, taking the hose line with them. They then used the hose line to partially extinguish the fires on the second floor to the point where they were able to exit the structure without injury.

Figure 5

Engine 1 crew evacuating to roof, Engine 2 suppressing fire on 2nd floor front.



Source: USFA Media Production Center

*windows represented in the D wall were not in place at the time of the fire.

Engine 2, led by EVD Michael Hiebler, had been instructed to take a hose line to the rear and enter through the back door of the building. Wayne Robinson was on the nozzle, followed by Jason Wright, Kelsey Norman, and Jason Stevens. Based on Hiebler's realization that they would need additional hose, the crew had assembled three sections of hose prior to the start of the exercise to add to their hose line. When the exercise began, they pulled a hose line from the fire engine, connected it to the hose previously prepared and proceeded to the rear of the structure per their instructions.

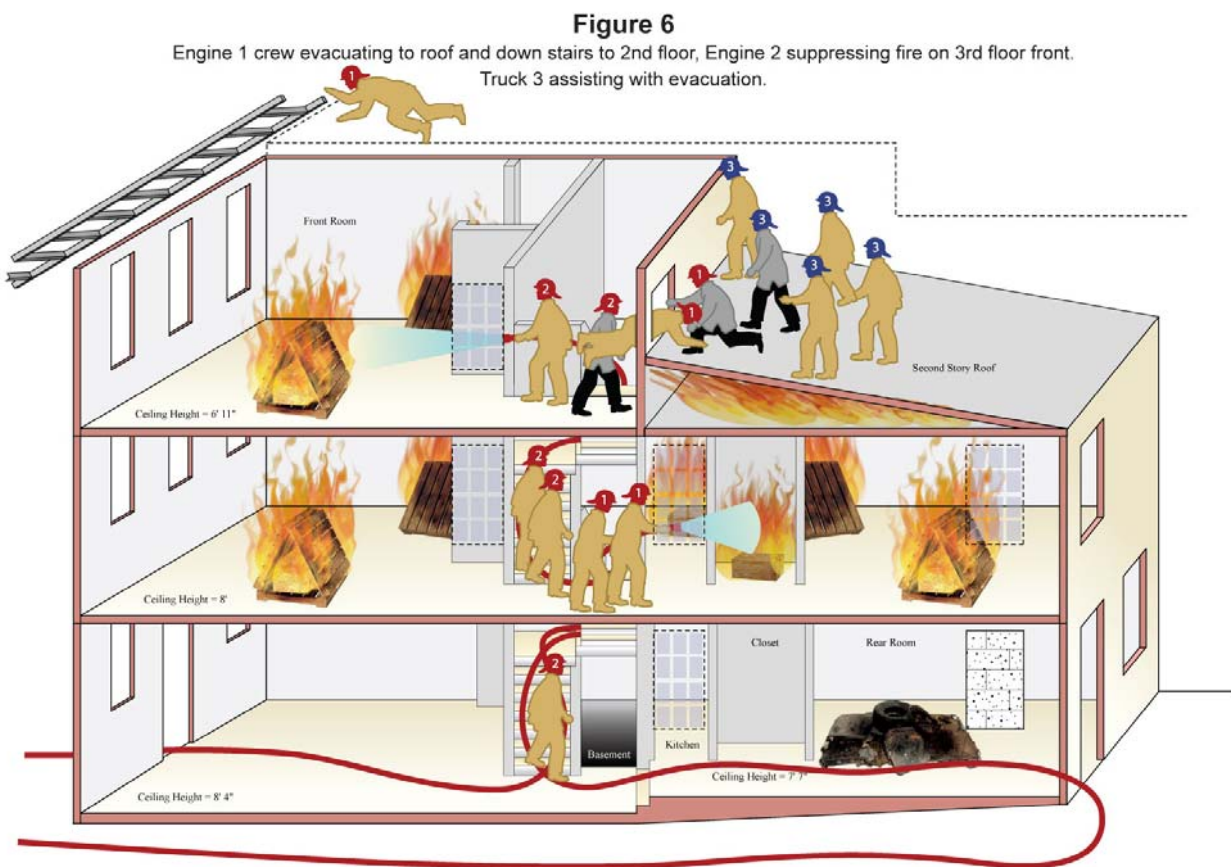
Hiebler stated that there was no mention of a fire on the first floor during the instructor briefing. He stated that someone talked about setting a fire on the first floor, but someone else spoke up and said it was not a good idea. Hiebler stated that he thought to himself that it was a bad idea as well. He could not recall who mentioned a first floor fire, nor the person who mentioned that it was a bad idea. Therefore, none of the participants expected a fire on the first floor.

A piece of plywood that at one time covered the rear door was simply hanging near the door frame and was removed by Truck 2's crew. Upon entering the building through the rear doorway, Engine 2 encountered the debris fire in the back room of the first floor. Hiebler noticed the fire traversing across the ceiling and instructed Robinson to extinguish the fire. Robinson opened the nozzle to extinguish the fire at the ceiling level, then began to address the

fire burning in the debris that was piled on the floor. To extinguish the fire, the crew had to place the nozzle under the debris, which materially delayed their response to the second floor

Once they extinguished the fire on the first floor, Hiebler and his crew proceeded to the second floor. They encountered two members of Engine 1's crew (Perez and Lichtenberg) on the stairs leading to the third floor. It was at that point when Hiebler reported hearing a commotion on the third floor. He ordered his crew, with the exception of FPA Robinson to remain in place. Hiebler and Robinson climbed the stairs to the third floor and saw Wilson at the window, with Wenger outside, trying to pull her to safety.

Hiebler and Robinson then tried to assist Wenger by grabbing Wilson's legs and trying to push her out of the window. Hiebler, who was concerned the fire on the third floor was getting out of control, told Robinson to extinguish the fire and he would assist Wenger with Wilson's rescue (Figure 6). Hiebler lifted Wilson's legs and with the assistance of those pulling from the outside, was able to remove her from the building. Hiebler stated that once he gained control of Wilson's legs, she was removed from the building without difficulty.



Source: USFA Media Production Center

*windows represented in the D wall were not in place at the time of the fire.

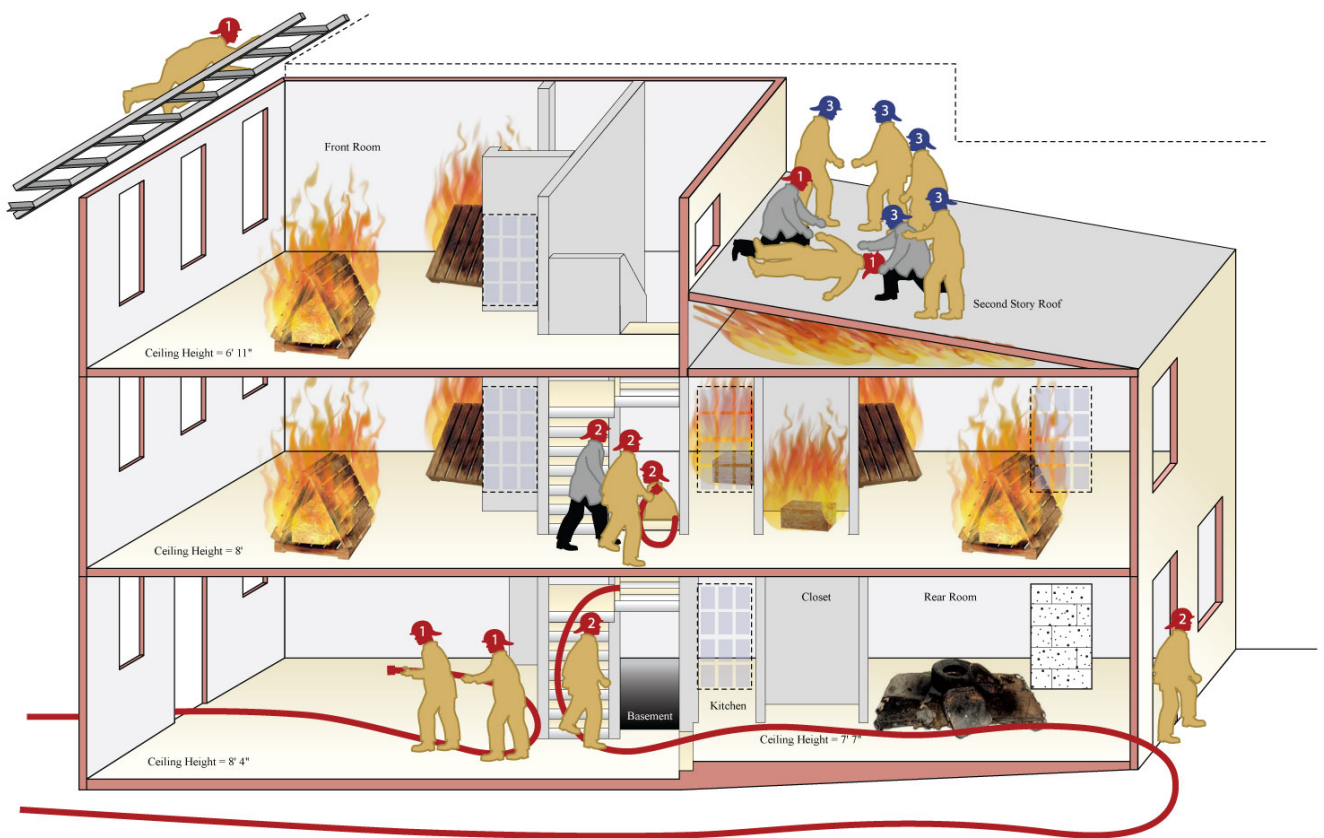
Hiebler could not discern whether Wilson was conscious or unconscious at the moment he reached her. Both he and Robinson stated that she did not appear to be able to assist with her own rescue. Based on statements given by Wenger and others, it is presumed that she was unconscious by this point.

The remainder of Engine 2's crew, following the orders they were given, became separated from Hiebler and Robinson. Jason Stevens, the last person on the hose line, reported that a firefighter unknown to him entered the building while the rescue effort was underway and instructed him to remove his breathing apparatus so he could use it. Once he removed his breathing apparatus, the unknown firefighter instructed him to leave the building immediately, as he was in an unsafe environment without breathing apparatus. Stevens was unaware as to who the individual may have been, but was later told it was someone assigned to Truck 10. Information obtained through interviews with others revealed it was Lieutenant Brian Krohn.

Once Wilson had been removed from the building, Hiebler and Robinson returned to the second floor to locate Norman and Wright, the remaining members of their crew. The four of them then exited the building, along with the remaining members of Engine 1 (Figure 7).

Figure 7

Racheal Wilson rescued, CPR initiated. Other crews evacuating structures.



Source: USFA Media Production Center

*windows represented in the D wall were not in place at the time of the fire.

Engine 3 was designated as the Rapid Intervention Team, led by Lieutenant Broyles. The BCFD Manual of Procedure (MOP) 602-8 (Appendix D) addresses RIT, defining the role the crew will assume in the event of a missing or trapped firefighter and the equipment they should gather in preparation for a potential event.

Lieutenant Crest tried several times to contact Engine 1 via radio for an update, but did not receive a response, as Engine 1's instructor did not have a radio. When Lieutenant Crest did not receive a response after repeated attempts to Engine 1, he requested RIT to deploy a hose line in the building (Appendix C). The RIT did not have a hose line prepared for deployment, so Broyles proceeded to the fire engine that was supplying water to the hose lines and asked EVD Angela Jasper for a RIT line. She advised him that he would have to assemble a hose line, as she did not have one available for his crew.

Lieutenant Broyles' crew then pulled three sections of hose from the Training Academy's utility vehicle that was on location and began assembling the hose line. The hose line was assembled and the crew entered the building, only to be told a short time later to withdraw from the building. Once they withdrew from the building, they heard calls for help. FPAs Miller, Polonski, and Erica Wilson moved a ladder from a second story window and placed it to the second floor roof. Broyles became separated from his crew, entered the building with the crews of Truck 10 and Engine 14 to assist with the rescue.

Truck 1, under the orders of Captain Lago, had placed two ground ladders near the second and third floor windows at the left front of the building, then entered the structure through the front door to perform search and rescue activity assigned as part of the exercise. Lago instructed the crew to proceed up the stairs and follow the first engine.

At this point, it is difficult to determine the exact actions of the crew. FPA Strawsburg reported that they followed the instructions they were given, but Captain Lago appeared to continue straight ahead on the first floor and did not follow them up the stairs. FPA Shea reported that he heard Lago talking while he was on the second floor, but the last time he saw him was at the front door of the dwelling. FPA Neisser stated that he and part of the crew had made it to the second floor, but the low air pressure alarm of a member of the crew, presumably FPA Stevens, had activated. FF/PM Tarnisha Lee, in response to the alarm, instructed Stevens, Neisser and Shea to exit the dwelling. Lee apparently entered the building when it was reported a firefighter was down.

FPA Strawsburg apparently became separated from her crew and, therefore, did not receive instructions to exit the building. While on the second floor landing, she heard calls for help. There were a number of students on the steps and she was separated from her crew, so Strawsburg reported that she tried to find a way out of the building. Lieutenant Jones apparently was standing on the second floor roof and told Strawsburg to proceed down the steps and exit the building.

FPA Strawsburg started to proceed down the steps but Lieutenant Broyles, who was standing in the stairwell, would not allow her to pass, stating that there was no room. She then proceeded back to the third floor, where she apparently exited through the same window as

Wenger, Cisneros, and Wilson. She required assistance from Lieutenant Jones and EVD Lotz to get through the window.

Once Truck 1's entire crew exited, they met outside the building, thus reuniting the crew. They were unaware of the situation involving Racheal Wilson and did not realize something was amiss until they saw her being carried down the aerial ladder.

Truck 2's crew entered the structure and followed Engine 2's crew to the second floor. Once there, Lieutenant Jones reported that he heard screaming. He tried to determine who was making the communication. In the meantime, he ordered his crew of three FPAs out of the building and proceeded to the third floor. He saw an individual down on the roof, knew it was a female, but did not know who it was. He later assisted Strawsburg in getting out of the building.

Truck 3's crew had climbed the aerial ladder to the roof of 143 South Calverton for the purpose of ventilating the roof of 145 South Calverton. They found that a hole had been cut in the roof during a previous training exercise, so they simply extended the hole. It was at that point that they heard screams for help. EVD Lotz, the instructor, saw Paramedic Cisneros trying to climb from the second floor roof to the third floor roof. He and FPA Larkins assisted her to the third floor roof.

When they realized another individual was in trouble, the crew jumped approximately six feet from the third to the second floor roof. It is difficult to determine who played what role, but it appears as though FPAs Larkins, Thibeault, Scroggins, and Thorpe all assisted EVDs Lotz and Wenger in removing Racheal Wilson from the structure. Thorpe stated that she saw the portable radio on the third floor roof and instructed Cisneros to use it to call for help. Cisneros stated that she saw the radio on the roof, picked it up, and used it to report a firefighter in need of assistance (Appendix C).

Battalion Chief William Hoffman of the Third Battalion, was standing by at the exercise. He had found out about the training earlier that morning and since the training was in his battalion, decided to stop by to observe. Engine 14 and Truck 10, also from the Third Battalion, were standing by and observing as well. The Third Battalion units on scene remained in service and were available for an emergency response.

Upon hearing the radio transmissions that indicated a firefighter was down, Chief Hoffman instructed his personnel to engage and assist with the rescue effort. He advised Fire Communications that he, Engine 14, and Truck 10 were out of service, assisting the Fire Academy with a live burn at Frederick and Calverton. A request for them to assist may have come from Chief Hyde in person, but there was no radio transmission from him requesting their deployment.

Engine 14 was commanded by Lieutenant Antoin Redditt. His crew consisted of EVD Dennis Greenwall, Firefighter Thomas Bethea, and FF/PM Jason Goodwin. The crew received orders from Battalion Chief Hoffman to enter the structure and assist with suppression of fires and to get the recruits out of the building. Lieutenant Redditt assisted a female recruit out of the third floor window and Goodwin instructed other recruits to exit the building as he proceeded to

the third floor. The female recruit may have been FPA Strawsburg, as Cisneros and Wilson had already been removed. This appears to have been the only interaction Engine 14's crew had with any of the recruits. FF/PM Goodwin also reported that he took the hose line that remained on the third floor and started extinguishing the fire.

Truck 10 was led by Lieutenant Brian Krohn, with FF/PM Adam Glassman, and EVDs Mark Tracey and Richard Garrison rounding out the crew. When instructed by Battalion Chief Hoffman to assist with the rescue, Truck 10's crew apparently split into two groups. Lieutenant Krohn and Firefighter Tracey entered the structure. Tracey made his way to the third floor and reportedly assisted a female recruit out of the window. He was unable to identify her, but it was probably FPA Strawsburg. Firefighter Tracey reported that he entered the building without breathing apparatus in place. Lieutenant Krohn apparently approached FPA Jason Stevens while in the building and ordered him to remove his breathing apparatus. Krohn then donned Stevens' breathing apparatus and instructed him to leave the building. He then assisted with suppression activities within the structure.

EVD Richard Garrison and Firefighter Adam Glassman climbed the aerial ladder to the third floor roof. They both assisted in placing Racheal Wilson in a Stokes Basket and subsequently carried her down the ladder.

It is difficult to determine exactly how many personnel were in the building at any specific point in time, given movement in and out of the structure. Based on information obtained from interviews the investigative team concludes that there could have been as many as twenty-eight BCFD staff and recruits during the course of the exercise.

Rescue of Racheal Wilson

From all accounts, it does not appear as though Racheal Wilson was in any distress upon reaching the third floor. This conclusion was supported by statements from Paramedic Stephanie Cisneros, who told BCFD investigators that Wilson did not appear to be in distress, nor was she excited prior to Cisneros being removed through the third floor window. EVD Wenger did not mention any problems with Wilson during the evolution, other than the fact that she fell when opening the nozzle of the hose line while on the second floor.

Wenger stated that once he assisted Cisneros out of the building, Wilson came to the window and told him she needed to get out. The window sill was 41 inches from the floor and Wenger recalled having to pull himself up in order to get out. Wilson, at five feet, four inches, was smaller in height than Wenger who appears to be at least six feet tall, so she was having difficulty getting through the window. He reached in the window and tried to pull Wilson out by the harness of her breathing apparatus, which was the same method he used to remove Cisneros. Wenger appears to have been able to lift or pull her torso, head, and upper extremities out of the window, but was unable to move her enough to clear her lower extremities. He asked her if she could help him and she replied that she could not help, as she was burning up and could not take the heat. Wilson was wearing the face piece of her breathing apparatus at that time.

Wenger then lost his grip on Wilson and she landed on her feet back inside the dwelling. When he grabbed her a second time, she was still conscious and stated that she was burning up. He noticed her mask was partially removed and did not know if she had pulled it off, or whether it was knocked off when she fell back inside the building. Wilson remained conscious and continued to communicate with Wenger, who also noticed that the skin on her face had started to blister. Interviews with other personnel revealed that Wilson's mask had not been removed, but was pushed to the side. Wenger and others later involved in the rescue effort reported hearing a "free-flow" of air from her mask.

The breathing apparatus provides air under positive pressure to the face piece of the wearer. The free-flow of air from the face piece occurs when it is removed from the wearer's face and air continues to flow into it. The breathing apparatus was sent by BCFD to the National Institute of Occupational Safety and Health (NIOSH) for testing to determine if it was functioning properly. The results of the test were not known to the investigative team prior to the presentation of this report. Although this report cannot verify the functionality of Wilson's breathing apparatus, the free-flow of air may indicate that she was receiving an adequate air supply prior to the face piece being separated from her face.

Without a radio, Wenger had no means to call for help, other than to scream, which is what he did. He lost his grip on Wilson again and she fell back into the building. Shortly after he was able to grab her for the third time, she became unresponsive. In response to his screams, the truck crew on the third floor roof came to his aid. Three members of the crew, along with Wenger, tried to pull Wilson from the building, but were unsuccessful.

Truck 3's crew, as previously mentioned, was on the third floor roof and after assisting Cisneros to the roof, proceeded to the second floor roof to assist Wenger with Wilson's rescue. FPAs Larkins and Thibeault assisted Wenger in trying to remove Wilson from the building, but were initially unsuccessful. EVD Michael Hiebler, from Engine 2, had made his way to Wilson's location and was able to assist from the inside by lifting her legs. That assistance allowed the rescuers to lift and pull Wilson from the window and onto the roof.

Conflicting statements were given regarding the placement of Wilson's face piece upon her removal from the building. Lotz stated that they rolled her over and unbuckled her coat, but the face piece was already removed. He stated that he did not know the location of her face piece. FPA Thibeault stated that the face piece was lying by Wilson's side. FPA Scroggins stated that the face piece was still "on" when she was pulled from the building, but he does not recall who removed her face piece. FPA Thorpe stated that Wilson's face piece was "pushed up slightly", but was still on her face when she was removed. EVD Wenger reported that her face piece was off when he attempted to rescue her the second time, but later stated that it was pushed to the side of her face. FPA Larkins, the only other person on the second floor roof during the rescue, did not provide a comment on the location of the face piece during his interview.

Based on the injuries to her facial area, it is obvious FPA Wilson's face piece was not in the proper position on her face when she received the thermal injuries. A visual inspection of her face piece revealed the lower left strap of the 'spider' strap, or harness that keeps the face piece in place, was intact, but had come loose from the buckle on the left side of her face piece. In

addition, the neck strap, which is attached to the face piece itself, had been torn loose. Whether the face piece was dislodged during the rescue attempt, or Wilson removed it herself remains a matter of conjecture.

During the rescue attempt, Wilson's left boot was displaced. Initial reports indicated that the boot may have become entangled at the base of the window. The boot was recovered subsequent to her extrication. Based upon the totality of the information received by the investigative team, it is believed that the difficulties encountered during the rescue attempt more attributable to the height and width of the window than the possible entanglement initially assumed. Although during the attempts to remove her from the window the victim's left boot at some point began lost. There were no compelling physical evidence observed at the structure or on the boot itself to suggest that it was entangled and thereby, preventing her escape.

Medical Treatment of Racheal Wilson

Racheal Wilson was pulled from the third floor window and placed face up on the second floor roof. Once removed from the building, Wilson's breathing apparatus was removed and her turnout coat was unfastened. As stated above, conflicting statements were received regarding the placement of her face piece. The face piece, whatever position it was in and wherever it was located, was removed.

As FPA Wilson was unconscious upon extrication, mouth-to-mouth ventilations, followed by cardiopulmonary resuscitation (CPR), was started immediately after she was removed from the building. Although conflicting statements were given as to who actually started CPR, it appears as though Lotz and Larkins provided the initial care, with assistance from Thibeault, Scroggins, and Thorpe.

Personnel caring for Wilson had to decide the best method of removing her from the roof. They first thought of taking her down a ground ladder that had been repositioned to the second floor roof at the rear of the building. Lieutenant Crest, who had come to the rear of the building to see what was transpiring, instructed them to lift her to the third floor roof, where she could be taken down the aerial ladder at the front of the structure. Some of those interviewed felt it was more feasible to take her down the ladder that was placed to the second floor roof. However, the decision was made to bring a Stokes Basket to the roof to facilitate the movement of Wilson from the roof to the ground below.

Medic 21 was the ambulance on stand-by for the training exercise. It was staffed by Paramedic Theresa Smith-Dixon and FF/PM Kenneth Van Dommelen. Upon hearing radio reports of a downed firefighter, Van Dommelen and Smith-Dixon proceeded to the rear of the structure. EVD Richard Garrison, from Truck 10, was on the third floor roof and yelled to Van Dommelen, advising him that Wilson had been moved to his location. Division Chief Hyde informed Smith-Dixon that the recruit was unconscious, which prompted her to return to the medic unit to retrieve additional equipment.

Van Dommelen proceeded to the front of the building and climbed the aerial to the location where Wilson had been moved. Smith-Dixon served as a runner for equipment, carrying oxygen, a bag-valve-mask, a backboard, and a Stokes Basket up the aerial ladder, where she was met by Van Dommelen, who then carried the equipment to the roof.

Wilson was placed on a backboard, then in the Stokes Basket, where Van Dommelen and Garrison carried her down the aerial. FF/PM Adam Glassman provided ventilations via a bag-valve-mask during her descent down the ladder. It was not possible to perform the chest compression component of CPR at this time.

When asked, Van Dommelen stated that it may have been possible to bring a cardiac monitor to Wilson's side while she was still on the roof, but those on the roof were concerned with its stability and were unsure of the conditions below. For that reason, they elected to package Wilson and move her from the roof as quickly as possible.

Once in the back of the medic unit, Paramedics Smith-Dixon and Van Dommelen began advanced treatment, including cardiac monitoring, intravenous therapy, medication administration, and endotracheal intubation. She was transported to the R Adams Cowley Shock Trauma Center, where her care continued until she was pronounced dead at 12:48 p.m. on Friday, February 9, 2007.

Autopsy Report

Racheal Wilson was transported to the Office of the Chief Medical Examiner, where an autopsy was performed on February 10, 2007. Patricia Aronica-Pollack, M.D., Assistant Medical Examiner for the State of Maryland, noted the cause of death to be thermal injuries and asphyxia. The autopsy did not reveal any abnormalities or underlying medical conditions that may have contributed to her death.

The Investigation

Initial Response and Preliminary Investigation

On February 9, 2007, at approximately 12:21 p.m., investigators from the BCFD Fire Investigations Bureau (FIB) and the Baltimore City Police Department (BCPD) Arson Unit, responded to 145 South Calverton Road to investigate a fatality that had occurred during a BCFD training exercise. Shortly after 1:00 p.m., the Fire Marshal for the BCFD also requested the assistance of the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) at the scene. The following investigative personnel initially responded to the incident:

Baltimore City Fire Department FIB

Captain William Martin (FIB 2)

Captain Bruce Shiloh (FIB 3)

Captain Stephen Gibson (FIB 11)

Captain Medford Lehl (FIB 6)

Battalion Chief Carl Bull

Baltimore City Police Department Arson Unit

Detective Edward Vogt

Detective Aaron Perkins

ATF

Acting Group Supervisor Mario Dispenza

Special Agent/CFI Gregg Hine

Special Agent Terrance Mortimer

Special Agent/CES Rachel Ehrlich-Ellis

An initial examination of 145 South Calverton Road was made by members of the BCFD, BCPD and ATF. The site was documented, photographed and video recorded at that time. Later on February 9, 2007, videotaped interviews were conducted by the BCFD FIB, with assistance from the BCPD Arson Unit, the BCFD Safety Office, and ATF. These initial interviews occurred at the quarters of Engine 14. Subsequently, additional video-recorded interviews were conducted on February 14, 2007, at the BCFD Training Academy and on February 15, 2007, at the BCFD Fire Marshal's Office. In total, 42 members of the BCFD participated in video-recorded interviews concerning their participation and observations at the training exercise on February 9, 2007.

On February 12, 2007, Captain Martin prepared a FIB Preliminary Report in reference to the origin and cause of the fires within 145 South Calverton Road (Appendix E). In his report, Captain Martin identified a total of seven separate locations where fires were established. The fire on the first floor involved discarded debris, and the fires on the second and third floors involved pallets and excelsior as a primary fuel. Captain Martin further noted that at five of the

seven fire locations, there was fire extension to the structure itself due to the lack of drywall protecting the wood structural elements.

On February 15, 2007, Lieutenant Rubeling and Special Agent Hine responded to 145 South Calverton Road and recorded detailed measurements of the interior of the structure. Lieutenant Rubeling and Captain Martin subsequently completed a sketch of the interior of the site based on the measurements recorded.

Baltimore City Fire Investigators determined that the left boot worn by FPA Racheal Wilson on February 9, 2007, was missing and was believed to have remained at the site. Accordingly, Lieutenant Rubeling, Captain Martin, Captain Lehl and Chief Bull returned to 145 South Calverton Road on February 20, 2007, to conduct a search for a missing boot. After examining the frozen debris on the third floor landing near the rear window, the boot was recovered.



On February 22, 2007, the BCFD released its preliminary report, which outlined the events of February 9 and noted numerous violations of NFPA 1403 and other factors that contributed to FPA Wilson's death.

Independent Investigation Process

On February 22, 2007, the Mayor of the City of Baltimore announced that an independent investigation would be conducted regarding the fatal training incident. The mayor subsequently enlisted the assistance of the Howard County Department of Fire and Rescue Services (HCDFRS), and ATF. On February 26, the investigation began when Chris Shimer, Lead

Investigator from the HCDFRS, and representatives from ATF met to develop a plan and assemble a team that would investigate the incident. In March, additional personnel from the United State Fire Administration joined the investigative team and participated throughout the remainder of the investigation.

Over the course of the next four months, numerous individuals were interviewed and re-interviewed. In addition, the investigative team examined hundreds of documents, reports, records, electronic mail transmissions, diagrams, photographs, manual orders, transcripts, audio and video recordings, as well as the BCFD Preliminary Report. In addition, the scene was examined on three separate occasions. The conclusion and recommendations noted in this report are based on an objective analysis of those interviews, materials and site examinations.

Subsequent Scene Examinations

On March 15 and 19, and April 25, 2007, 145 South Calverton Road was examined by members of the investigative team. During the examinations, members of the BCFD Fire Investigations Bureau were also present.

During the examination on April 25, 2007, ATF Photographer John Wheeler photo documented the interior and exterior of the building, the various fire locations and remnants of excelsior. In addition, debris from the kitchen (the rear room on the first floor) was physically removed and photographed at that time. As a result, it was determined that the debris in this area consisted of one twin mattress, two full size mattresses, a foam pad with vinyl cover, an automobile tire, tree limbs, a seat cushion, a trash can, lumber, and other discarded materials. An examination also was made of the interior separation between the first floor and the second floor at the rear of the structure. Based on this examination, the investigative team concluded that the fire involving the debris on the first floor was a separate point of origin and not caused by or related to the fires in other parts of the structure.

Number and description of fires set

On February 9, 2007, numerous fires were set within the building at 145 South Calverton Road. Through the interview process, it was stated that approximately eleven bales of excelsior and at least ten wooden pallets were used to set fires inside the structure for the live burn exercise. These materials were distributed by students in rooms throughout the structure and were later ignited. Specifically, in various locations on the second and third floors, one pallet was placed flat on the floor to establish a base, with two others placed upright in an angled manner to form a “teepee” type of configuration. Excelsior was located within the open area of the configuration. Additional pallet configurations were used to set fire on the second and third floors which involved leaning a single pallet against a wall, with excelsior placed between the pallet and the wall.

Prior to the start of the training exercise on February 9, students were instructed to carry in and position the pallets and excelsior throughout the structure. With little guidance or oversight, the FPAs placed excelsior in open areas of the ceilings and heat vents, and pushed excelsior behind vented areas where sheetrock had been pulled away from the studs. Students

were never advised of the NFPA standard that limits the number of fires permitted within an acquired structure to one.

The rear room on the first floor was loaded with debris, to include three mattresses, a tire, tree branches, and other household debris, that acted as a fuel load. It is believed that the debris had been abandoned within the structure. NFPA 1403 specifies that unidentified materials, such as debris found in or around the structure that could burn in unanticipated ways, react violently, or create an environmental or health hazard, shall be removed prior to a live burn. When the crew of Engine 2 entered the building through the rear door on the first floor, they encountered fire where the large pile of debris remained, which contributed to an excessive fuel load and inhibited ingress and egress.

The numerous void spaces and the fact that ceilings had been removed, in addition to the amount of material used and the debris on the first floor, should have been considered prior to starting fires and sending personnel into the building. A pre-burn briefing session would have made the students and instructors aware of the excessive application of materials. If the Incident Commander and Safety Officer had not been aware that excelsior and pallets were used to such an extent, the pre-burn briefing session would have created an opportunity to address this issue. It was apparent to the investigative team that an assessment of conditions was not made.

The number of fires and fuel load to be used during a training exercise should have been limited for a variety of reasons. The fuel load shall be limited to avoid conditions that could cause an uncontrolled flashover or back draft, and to alleviate factors that can affect the growth, development, and spread of fire. The Safety Officer did not observe the method and configurations in which the pallets ultimately were constructed and the excelsior was placed by students, and such fuel loading was not documented by the Instructor in Charge prior to the live burn.

Several areas where excelsior had been placed were not ignited prior to the training exercise, and were intended to burn upon contact. In consideration of the vast amounts of excelsior used and the debris on the first floor that acted as a fuel load, in addition to the imprecise number of pallet configurations stuffed with excelsior, the exact number of fires set cannot be determined. However, it appears that, at a minimum, fires were established within every room on the second and third floor of the structure, and debris was ignited on the first floor.

Documentation of Protective Gear

On March 19, 2007, a team of investigators from the National Institute of Occupational Safety and Health (NIOSH) conducted a visual examination of the protective gear, clothing and self-contained breathing apparatus (SCBA) worn by FPA Racheal Wilson. An inspection of the gear was conducted by Lion Apparel. Their report can be found in Appendix F.

On May, 29, 2007, the protective clothing and SCBA worn by FPA Racheal Wilson was transported to the ATF Fire Research Laboratory located in Beltsville, Maryland, by Battalion

Chief William Jones. The items were fully photographed in a static display, then placed onto a mannequin to portray the manner in which the garments were actually worn by FPA Wilson.



The investigative team also made contact with National Safety Clean, Inc. which provides protective gear cleaning and repair services for the BCFD. Tag information from the gear worn by FPA Wilson was provided to National Safety Clean, Inc., which was unable to positively identify the last time the garments were cleaned at its facility. However, National Safety Clean, Inc. indicated that procedural changes had been made recently with regard to the cleaning of BCFD protective clothing, and bar codes from all garments are recorded now so that exact cleaning and repair data can be recalled in the future.

Investigative Inconsistencies and Obstacles

The investigative team encountered some inconsistencies and obstacles that affected a full accounting of the events that surrounded the live burn on February 9, 2007. For example, at the conclusion of the interviews, the investigative team had been provided five different perceptions regarding the position of Racheal Wilson's face piece at the time that she was pulled out of the third floor window at 145 South Calverton Road: EVD Jonathan Lotz stated that the face piece was off; FPA Brandon Thibeault stated it was at her side; FPA Mark Scroggins stated that it was on her face; FPA Shonnie Thorpe stated that it was "pushed up"; and EVD Ryan Wenger stated that it was to the side of her face. Although all perceptions may be accurate, each individual arrived at different stages during the extraction, and their observations may have been affected further by the stress that they each endured during that time. In addition, classmates and instructors already were aware at the time of the interviews that Racheal Wilson had previously removed her face piece under stressful and claustrophobic conditions.

Additional inconsistencies encountered during the interview process included at what point the hose line, operated by Engine 1, was charged during the training operation. Further, the RIT had received no instruction from their leader, Lt. Barry Broyles. When activated, the team quickly assembled an attack line from hose obtained from the Training Academy's utility vehicle that was on location. However, it is unclear as to whether they successfully maneuvered the line into position to enter the building as the emergency evolved.

Other obstacles were encountered during the interview process, which included an apparent unwillingness by FF/PM Tarnisha Lee to meet with NIOSH investigators, and her relative uncooperativeness during a brief interview with the investigative team on June 6, 2007, when Lee provided information that was significantly inconsistent from her previous statement on February 9, 2007. Further, Lieutenant Eugene Jones opted not to be interviewed in the presence of ATF on March 23, 2007, which limited the ability of the investigative team to gain candid, first-hand knowledge of his participation and observations.

Three academy staff personnel retired between February 23 and March 2, 2007, and were unavailable for comment: Doug Campbell, Lieutenant Daniel Zapolowicz, and Chris White. Further, Division Chief Hyde had been advised by legal counsel not to speak with the investigative team.

One of the most significant obstacles encountered in this investigation was an omission by participants regarding the person(s) responsible for setting the fire on the first floor. Although investigators do not believe that Tarnisha Lee ignited the debris in the first floor rear room prior to exiting through the rear door, her statements are inconsistent regarding where she extinguished the flare that she used to 'stoke' the fires. All participants, to date, have denied igniting, or observing the onset of, the first floor fire prior to receiving commands to enter the building at the start of the actual training exercise. However, during the video-recorded interview of Kenneth Hyde on February 9, 2007, he insinuated that Lieutenant Crest was responsible for a flare being thrown into the debris pile.

The first floor fire is a significant aspect of this investigation, since Engine 2 was delayed in providing back-up assistance to Engine 1 as they had to deal with the unanticipated fire on the first floor. This fire required an inordinate amount of attention due to the excessive fuel load upon entry through the rear door. This delay allowed the fires on the second floor to continue to burn uncontrolled for a period of time.

Findings, Discussion, and Recommendations

During the course of researching all of the information and factors surrounding this tragic incident, the investigative team discovered a number of violations, issues, and other circumstances that will be addressed in this section. The team has attempted to categorize the findings and discuss them where appropriate. Recommendations will follow each finding.

Discussion of NFPA 1403

The National Fire Protection Association is a nonprofit organization that is considered a leading advocate for fire prevention and is an authoritative source on public safety. The NFPA's mission is to reduce the worldwide burden of fire and other hazards on the quality of life by developing and advocating consensus codes and standards, research, training and education (Retrieved from the website www.nfpa.org, May 24, 2007).

NFPA 1403, *Standard on Live Fire Training Evolutions* (Appendix A), is a standard that defines the manner in which live fire training should be conducted. The first edition of the standard was issued in 1986, prompted by the deaths of two firefighters at a training exercise in 1982. The applicable edition is the 2002 Edition, which is the standard under which the BCFD operated and which the investigative team referenced for this report. A 2007 Edition has been developed, but would not have been used by the BCFD at their Training Academy at the time of this fatality.

According to NFPA 1403, **“The purpose of this standard shall be to provide a process for conducting live fire training evolutions to ensure that they are conducted in safe facilities and that the exposure to health and safety hazards for the firefighters receiving the training is minimized”** (NFPA, 2002).

The area of the standard on which the investigative team focused a great deal of attention was Chapter 4, Acquired Structures. The BCFD Training Academy has several buildings and props on the premises that are used to construct fires for the purpose of training new recruits. Operations in such facilities are covered in other chapters of the standard and did not pertain to the training exercise on February 9.

An acquired building is defined by NFPA 1403 as “A structure acquired by the authority having jurisdiction (BCFD) from a property owner (DHCD) for the purpose of conducting live fire training evolutions” (NFPA, 2002). In other words, if a property owner desires to have a structure removed from his property, he can request the fire department to burn it if they wish for training purposes. It is then up to the fire department to determine if the structure meets the requirements of NFPA 1403 and is suitable to burn.

Although the NFPA develops standards that are widely accepted by fire departments not only in the United States, but around the world, they are not laws, nor mandates. It is up to each jurisdiction having authority or department to determine whether or not to adopt the standards, in part or in whole as an operational requirement.

The BCFD Fire Academy is an Accredited Training Review Agency (ATRA) by the Maryland Fire Service Personnel Qualifications Board (MFSPQB). Training academies are reviewed on an annual basis and re-accredited every three years in order to maintain their ATRA status. The BCFD Fire Academy was in the process of re-accreditation and was the subject of a site visit on February 7, 2007 by reviewers from MFSPQB and other area fire departments. As

part of the site visit, the Fire Academy prepared a manual for the reviewers titled “Fire Academy Certification Documentation”

The Baltimore City Fire Academy’s Testing Policy, dated December 1, 2006, states “Live fire evolutions shall be conducted in conformance with the latest edition of NFPA 1403” (Appendix G). This statement establishes for the record that the BCFD Fire Academy considers NFPA 1403 their policy when conducting live fire training, such as the ones on February 8, 2007, and February 9, 2007.

The ensuing section will list the elements of NFPA standard in numerical order, followed by the findings of the investigative team, with discussion and recommendations as appropriate. Items in which no violation or variation from the standard was noted will not be discussed. Therefore, it may appear as though some items were omitted, when in fact they were not.

Violations of NFPA 1403

4.1 Student Prerequisites

4.1.1 “Prior to being permitted to participate in live fire training evolutions, the student shall have received training to meet the job performance requirements for Fire Fighter I, in NFPA 1001, *Standard for Fire Fighter Professional Qualifications*. ”

Finding: Some of the Class 19 students did not appear to have been adequately prepared to meet the appropriate job performance requirements prior to engaging in live fire suppression activities in the acquired structures on February 8 and 9, 2007.

Discussion: This section of NFPA 1403 describes the training that must have been received by each student prior to participating in live fire training evolutions. It also specifies that the training must meet the job performance requirements for Firefighter I in the standard noted above.

The members of Recruit Class 19 who participated in live fire training on February 8 and 9 had all been reported to have successfully completed the Firefighter I program on February 7. However, there is evidence that suggests at least some of the recruits could not properly perform all of the job performance requirements or were not given an adequate opportunity to do so.

It was reported that some members of the class had minimal experience with live fire training at the Fire Academy prior to February 8. During an interview with BCFD investigators and subsequently with the investigative team, FPA Tina Strawsburg stated that she had not been involved in any live fire training in the Training Academy’s burn building. Prior to the live fire training on Sinclair Lane on February 8, her experience consisted of one opportunity in the flashover simulator, one car fire, and a demonstration of thermal layering in the burn building. She also stated that other members of her crew had likewise not experienced a live fire scenario in the burn building prior to February 8.

Paramedic Stephanie Cisneros stated that she engaged in a good-natured, competitive discussion with Racheal Wilson as to who would be operating the nozzle on February 9. The reason for their discussion, according to Cisneros, was that neither of them had had an opportunity to operate a nozzle in a live fire situation and both were eager to do so.

FPA Daniel Nott, who was not involved in the exercise on February 9, due to an injury sustained at a training exercise on February 8, stated during an interview with the investigative team, that the Academy instructors left it up to the members of each crew to decide who served what role. This created an environment by which the aggressive members of the crew would step up and assume the more active roles. Therefore, those who may have been apprehensive or less aggressive did not experience the same opportunities as others. As a result, some members of the class had numerous experiences in live fire scenarios, while others had none, or very few.

FPA Shonnie Thorpe told the investigative team that she had been in the fire training building three or four times prior to the training exercise on February 8. However, she thought that Wilson only had one experience prior to February 8. Thorpe and Wilson had developed a friendship during the academy and apparently kept in close contact with each other.

Captain Terry Horrocks, an instructor at the Training Academy since 1999, was interviewed by the investigative team, based on his tenure and experience. He was not actively involved in the firefighting portion of FPA Recruit Class 19, but was aware of their activities. He advised that sometime within the week prior to February 9, Lieutenant Crest voiced his displeasure with the class, stating that they could not “throw” ladders and two-thirds of them should not have been there. When asked by the investigative team if this class was adequately prepared to participate in a live burn exercise in an acquired structure, Horrocks replied “absolutely not”.

Horrocks was off duty on February 8 and was not assigned to participate on February 9. Based on Crest’s comments and his own observations, he stated that on the morning of February 9, he asked Chief Hyde not to take the recruits to a live burn exercise in an acquired structure, as they were not ready. Chief Hyde responded by saying that he had planned to follow through with training and proceeded to South Calverton Road.

Recommendation: The Training Academy staff should ensure that all participants in a live fire training exercise have received the training and opportunities to properly perform the job performance requirements. All students must be well versed and reasonably proficient in the fundamental aspects of firefighting operations prior to engaging in live fire training in an acquired structure. Documentation should detail if a student is unable to participate in a skill or function, or if the student’s performance is less than acceptable. A student’s first experience in a live burn exercise should not be in an acquired structure.

4.2 Structures and Facilities

4.2.1 “Any building that is considered for a structural fire training exercise shall be prepared (emphasis added) for the live fire training evolution.”

Finding: The structure at 145 South Calverton Road was not suitable at the time of use to burn as an acquired structure. Although the structure was, in all probability, initially suitable for use in live fire training evolutions, if properly prepared. The previous ventilation drill, which opened many of the upper floor walls and ceilings created a condition, making the structure unsuitable for such training activity.

Discussion: The explanatory material of NFPA 1403 states that when available, facility burn buildings should be used instead of acquired structures. This is a matter of opinion, as some departments throughout the country use acquired structures in addition to their facility's burn buildings. The exact number is not known and it would be extremely difficult to determine. It is the opinion of some that valuable training can be obtained through the use of acquired structures. The focus of the investigative team was not on BCFD's decision to use an acquired structure for training purposes. The team found that the process used by BCFD for selecting the acquired structure and its subsequent use did not conform with the controlling NFPA standard.

Recommendation: Will be addressed in the ensuing items of 4.2 of the standard.

4.2.2 "Preparation shall include application for and receipt of required permits and permissions."

Finding: BCFD produced some documentation that would indicate they had the permission or required permits to burn at 145 South Calverton Road.

Discussion: The only documentation that could remotely be tied to this standard was a series of emails between Division Chief Kenneth Hyde and Deputy Chief Theodore Saunders. The emails also included those between Chief Saunders and representatives of the Baltimore City Department of Housing and Community Development (DHCD).

During an interview with the investigative team, Chief Saunders advised that he worked as an intermediary between Chief Hyde and the DHCD to acquire structures for the Training Academy. He stated that Chief Hyde would request structures for training, and he would then work with the DHCD to acquire the structures.

The emails started on January 2, 2007, when Chief Saunders sent a request to Michael Braverman, Deputy Commissioner of DHCD, asking for a couple of dwellings that could be used for training the recruit class. He stated that they were not going to burn the structures, but would only use them for pulling ceilings and cutting holes in the roof.

Jerome Dorich from DHCD responded back to Chief Saunders on January 3, offering a number of structures as options, including 145 South Calverton Road. He advised that the structures had been condemned as unsafe for various reasons and asked that the fire department keep that in mind.

Chief Saunders forwarded the entire email thread to Chief Hyde later on January 3, requesting that Hyde advise him of his intentions. Hyde responded by asking if 143 and 145 South Calverton Road were ok to use and Saunders replied on January 4, stating that he assumed it was fine to proceed.

On January 22, 2007, Chief Hyde sent Chief Saunders an email, requesting two dwellings for burning on February 8 and 9. Chief Saunders responded by asking if there were any left from the list previously provided. Hyde stated that they had used the good buildings, so Saunders advised him that he would work on it.

Later on January 22, Chief Saunders sent an email to Mr. Braverman, requesting two dwellings for burning on February 8 and 9. Braverman asked both Jerome Dorich and Rosa Diaz to facilitate the request, and they were subsequently able to obtain two buildings in the Claremont Development off of Sinclair Lane. Saunders was advised of the buildings in an email from Braverman on February 5.

On February 6, Braverman gave Chief Saunders the telephone number of the property manager for the Claremont Development and said that the Fire Department could contact them directly if they so desired to obtain permission to burn. The entire email thread was passed from Saunders to Hyde on February 6, stating that Hyde could contact the individual directly for permission. There were no follow-up emails or any other documentation that would support BCFD having obtained any documented permission to use buildings in the Claremont Development, or South Calverton Road. The entire series of emails is included in Appendix H.

Division Chief Hyde presented a package of documents to Battalion Chief Carl Bull on February 12, 2007 (Appendix B). His package contained several pages from NFPA 1403, including a release form and a sample checklist for live fire evolutions. This checklist included permission to burn, among other things. The checklist provided by Hyde was blank and the release form was not completed.

Recommendation: Develop a process, which would include appropriate documentation, verifying that the BCFD has permission to burn and has obtained the proper permits. This documentation would be included in the package of information that should be submitted for review and approval.

4.2.3 “Ownership of the acquired building shall be determined prior to its acceptance by the authority having jurisdiction.”

Finding: Other than the previously mentioned emails, there is no documentation that the ownership of the buildings on Sinclair Lane or South Calverton Road was determined prior to use for fire training purposes.

Discussion: The explanatory material in the standard states that building ownership should be reviewed by the legal counsel of the authority having jurisdiction prior to accepting the structure. Michael Braverman, the Deputy Commissioner DHCD, advised the investigative team that the title for 145 South Calverton Road was held by the Housing Authority of Baltimore City, but the City of Baltimore was in the process of acquiring ownership of the building at the time of the fire. This may simplify the process for buildings in which the title is held by Baltimore City, but ownership should still be established to avoid potential liability exposures.

As for the structure on Sinclair Lane, there is no evidence that ownership was determined, nor was it reviewed by legal counsel. Based solely on the fact that the Fire Department became aware of the buildings on February 6 and burned at that location on February 8, there is no indication that any documentation was reviewed by legal counsel.

Recommendation: Establish a process by which ownership can be determined and document the same. Documentation should be reviewed by legal counsel prior to the Fire Department engaging in training activities at the site.

4.2.4 “Evidence of clear title shall be required for all structures acquired for live fire training evolutions.”

Finding: No evidence or documentation could be provided by BCFD that would establish a clear title.

Discussion: This may have been established for 145 South Calverton Road, but apparently was not done for the fire on Sinclair Lane.

Recommendation: Provide a copy of the title in the documentation for a live fire training evolution.

4.2.5 “Written permission shall be secured from the owner of the structure in order for the fire department to conduct live fire training evolutions within the acquired building.”

Finding: There is no evidence that written permission was obtained from the developer of the Sinclair Lane properties or DHCD for the South Calverton Road buildings.

Discussion: The only documentation provided were the emails between BCFD and DHCD for the South Calverton Road dwelling. While nothing in the standard suggests the “written permission” from the owner could not be accomplished by email, the content of those communications should address all of the standard’s specific documentation and review requirements.

Recommendation: Design a release form with the City’s legal department that would grant BCFD permission from the property owner to use a structure for fire training. Documentation should be reviewed by legal counsel prior to the Fire Department engaging in training activities at the site.

4.2.6 “A clear description of the anticipated condition of the acquired building at the completion of the evolution and the method of returning the property to the owner shall be put in writing and shall be acknowledged by the owner of the structure.”

Finding: There is no evidence this was done.

Discussion: It appears as though the structure on Sinclair Lane was acquired just prior to the training evolution and there was not enough time to produce the required paperwork. When

planning to participate in live fire training, ample time must be allotted to allow for appropriate documentation to be completed.

Recommendation: Provide the description as specified in the standard. Include documentation in a file related to the exercise.

4.2.7 “Proof of insurance cancellation or a signed statement of nonexistence of insurance shall be provided by the owner of the structure prior to acceptance for use of the acquired building by the authority having jurisdiction.”

Finding: No evidence was provided that would indicate this was accomplished.

Discussion: This may not have been necessary for the dwelling on South Calverton Road, as the title was held by the Housing Authority of Baltimore City and were uninsured as required. It was, however, necessary for the site on Sinclair Lane. As with several of the above items, a cancellation of insurance should be reviewed by legal counsel to insure no subsequent liability exposure to the City.

Recommendation: Acquire proof of insurance cancellation or a signed statement of nonexistence of insurance from the owner and have such documentation reviewed by legal counsel. Provide a copy of documentation in a file for the training exercise.

4.2.10.4 “Holes in walls and ceilings shall be patched.”

Finding: Interior wallboard and ceilings had been pulled during a previous training exercise at 145 South Calverton Road. These openings in various rooms were not patched prior to the live burn exercise, resulting in structural spaces which were grossly unsafe for the conduct of live fire training.

Discussion: It was reported that excelsior (additional fuel load) had been stuffed between the joists where the ceiling once was. In addition, Lieutenant Crest stated that they pulled wallboard and stuffed excelsior behind the walls. A walk through of the building by the investigative team revealed the excelsior in the exposed ceiling had ignited and was almost entirely consumed by fire, but that which was placed behind the walls did not fully ignite (See Photo). Contrary to the intent of the standard that the interior walls and ceilings be intact to avoid unsafe fire extension, Academy instructors participated in and directed students to load the void spaces created by the ventilation drill with combustible excelsior in an attempt to intensify the conditions to which recruits would be exposed.



Excelsior fire loading in vents between wall studs.

The exposed ceilings appear to have been a major contributing factor to the incident. This structural condition and other factors, such as the open ventilation of the structure combined with the placing of excelsior between the joists, likely contributed to the rapid fire spread and build up of heat that caused deteriorating conditions (See Photo). A fire set in the rear room of the second floor rapidly spread to a void space between the open ceiling joint and the roof and traversed under the roof toward the stairway and the area on the third floor where EVD Ryan Wenger, Paramedic Cisneros, and FPA Wilson were positioned, exposing them to intense heat and limited visibility. A ceiling that was intact would have slowed the rapid spread of fire and heat from at least four fuel load configurations set under the second floor roof.



Second floor rear room showing extensive char to ceiling joist under second floor roof.

Recommendation: Patch all holes in the ceilings and walls as specified by the standard.

4.2.11.1 “Debris creating or contributing to unsafe conditions shall be removed.”

Finding: Sufficient debris was found on the first floor in both the front and back rooms of the dwelling to constitute unsafe conditions for the training evolution.

Discussion: Broken cinder blocks were found in the front room that had been removed from the windows on the first floor. They did not contribute to the fire, but their presence made it difficult for the crews to traverse through the front room which was the only room, in addition to the basement, that was not involved in the fires.

A large amount of debris, composed of various combustibles which were ignited, contributed substantially to the heat and smoke conditions within the structure, and the delay of Engine 2 personnel reaching and suppressing the multiple fires on the second floor may have had a significant impact in the overall operation.

The training fire had been investigated by BCFD’s Fire Investigation Bureau (FIB) and the Baltimore City Police Department. The building was secured at the conclusion of their investigation.

On March 15, 2007, several members of the investigative team met with representatives from the FIB at 145 South Calverton Road for a walk through of the building. The purpose of the walk through was for the investigative team to gain a perspective of the layout, dimensions and post fire conditions of the structure. The scene was not materially disturbed and was subsequently secured by the FIB.

On March 19, 2007, some members of the investigative team accompanied NIOSH investigators to the site to conduct their analysis. They were granted access by members of BCFD’s FIB. They walked through the building, took notes and made observations. Once finished, the scene was secured by BCFD investigators.

On April 25, 2007, members of the investigative team again met with the FIB at 145 South Calverton Road. The purpose of returning to the scene was to examine and remove fire load debris that remained in the first floor rear room. The back room of the first floor was loaded with a significant combustible fire load, including tree branches of various sizes, three mattresses, a tire, and other miscellaneous items described earlier in this report. The interior and exterior of the structure, along with the debris, was photographed by a representative of the ATF.



Debris in rear room prior to removal.



Debris on concrete pad after removal from rear room.

Both the obstructive and combustible debris created and contributed to an unsafe condition for personnel as they participated in the training exercise. As was mentioned previously, the crew of Engine 1 was instructed to proceed directly to the third floor. Wenger allegedly confirmed those instructions with Crest. The reason Crest supposedly told them to go directly to the third floor

was that the crew of Engine 2 would be entering behind them from the rear of the structure and would take care of the fires on the second floor.

However, when the crew of Engine 2 entered the building, they unexpectedly encountered fire on the first floor. They initially knocked down the fire they encountered but, according to Hiebler, they had to push the nozzle under the debris to extinguish the fire. This caused a delay in them reaching the second floor, which allowed those fires to burn uncontrolled. Therefore, the crew of Engine 1 did not receive the support that had been planned. These events are discussed in detail later in the report.

Recommendation: Remove all the obstructive and combustible debris as specified in the standard.

4.2.12 “Exits from the building shall be identified and evaluated prior to each training burn.”

Finding: There is no documented or anecdotal evidence that exits were identified or evaluated by the officers conducting the training exercise to assure participants could safely evacuate in the event of an emergency or deterioration of conditions.

Discussion: There was discussion on which dwelling on South Calverton Road was to be burned, including discussion as to the possibility of a basement fire. However, no one mentioned discussion of exits. The structure had no exit ways on the solid wall (B side) with the adjoining structure, three windows, one on each floor, including the exit window and a door at the ground level at the rear (C side), five windows on the D side wall that adjoined the alley, and a door and eight windows were present at the front (A side) of the structure. Given the configuration of the structure and the placement of the set fires, the only relatively safe areas available to exit the upper floors would have been the windows near the center on the D side. It should be noted that the fire extension to the rafters of the second story roof, onto which the Engine 1 personnel exited, was subject to the thermal effects of multiple ‘set fires’ below it on the second floor, which unabated would have created a significant potential for collapse.

The D side centermost windows facing the alley afforded the only exit ways from the structure that would not require exiting personnel to go past or through a fire involved compartment or room to affect a safe egress of the structure via ground ladders. Since no such exit way identification was communicated to the participants, the only safe exit available was through the front door via the central stairway.

Recommendation: Exits should be identified per the standard and documented on an incident action plan.

4.2.12.1 “Participants of live fire training shall be made aware of exits from the building prior to each training burn.”

Finding: There is no evidence the participants were made aware of exits from the building.

Discussion: There was no discussion among the students or instructors as to the exits or means of egress from the building. Some students assisted prior to the exercise by carrying pallets and excelsior to various rooms of the building. For them, that was their only exposure inside the building. Other students did not have the benefit of entering the structure prior to the burn.

This may not have played a role in the outcome for Racheal Wilson, as she was at a window and probably thought she could be pulled to safety. However, FPA Tina Strawsburg became separated from her crew and was not aware of the location of exits from the building. Had she not encountered an instructor who assisted her out of the building, she may have suffered serious injuries as well.

Recommendation: Advise all participants of the training exercise of the exits from the building per the standard.

4.2.13 “Buildings that cannot be made safe as required by the chapter shall not be utilized for interior live fire training evolutions.”

Finding: The building, as has been indicated in above sections, was not safe to be used for live fire training evolutions.

Discussion: It may have been possible to prepare the building to comply with the standard, but it was not at the time of use. In addition, the original request by BCFD to DHCD for acquired structures stated that the buildings would not be burned. The Department of Housing and Community Development, when they gave BCFD permission to use 145 South Calverton Road, advised that the building had been condemned unsafe for various reasons (Appendix H). As has been mentioned previously, 145 South Calverton Road should not have been used for a live fire training evolution given its condition at the onset of the training activity.

Recommendation: Do not use buildings that cannot be made safe per the standard.

4.2.14 “Adjacent buildings or property that might become involved shall be protected or removed.”

Finding: There is no evidence that an effort was made or a plan was in place to protect any exposed structures.

Discussion: The dwelling used was the end unit of a three unit block section that also included similar structures 143 and 141 South Calverton Road. The unit at 143 South Calverton was attached to 145 South Calverton and easily could have been involved as well. In addition, there is a structure across a ten foot alley that also could have been considered an exposure.



141, 143, and 145 South Calverton Road.



Picture shows exposures to B and D sides of structure.

Battalion Chief William Hoffman was assigned as Battalion 3 on February 9 and arrived at the training site to observe the activity. During his interview with BCFD investigators, Hoffman stated that he walked through the dwelling and was not necessarily concerned about the training

exercise, but instead was concerned about the exposures that existed. Of those interviewed, Hoffman was the only individual who expressed concern about exposures.

Recommendation: Develop a plan to protect or remove exposures as required by the standard.

4.2.17 “Combustible materials, other than those intended for the live fire training evolution, shall be removed or stored in a protected area to preclude accidental ignition.”

Finding: As mentioned in 4.2.11.1, a large amount of combustible debris was noted in the rear room on the first floor.

Discussion: The combustible materials present were not removed and were ignited, either intentionally or by accidental means. This added to the volume of fire and delayed the second engine’s response to the second floor. A detailed description of the debris is noted in this report and pictures show the materials that were found in the rear room on the first floor. As well, combustible foam insulation was noted between studs on the second floor D-wall where wallboard had been removed prior to the live fire evolutions.

Recommendation: Remove any such materials present as required by the standard.

4.2.23 “The lead instructor shall determine the rate and duration of water flow necessary for each individual live fire training evolution, including the water necessary for control and extinguishment of the training fire, the supply necessary for backup lines to protect personnel, and any water needed to protect exposed property.”

Finding: The documentation provided by BCFD indicates a required fire flow of 56 gallons per minute (GPM) on the second floor and 37 GPM for the third floor.

Discussion: The documentation provided was included in a package of information for the training exercise that was presented by Division Chief Hyde to Battalion Chief Carl Bull of the FIB on February 12, 2007 (Appendix B). It also should be noted that the documentation listed 143 South Calverton Road as the address. According to BCFD, there was confusion as to the correct address of the building in question, but the structure referred to as 143 was actually 145 South Calverton Road.

The fire flows noted would appear to be within reason if a single fire on any of the three floors was encountered. Given the actual situation and the volume of fire generated by multiple set fires and the rapid extension to exposed structural components, the fire flows provided appear to be potentially inadequate.

The fire flows reported only accounted for suppression lines and did not cover the backup lines, nor the lines needed to protect exposures. As previously mentioned, exposures did not appear to be a concern and hose lines were not deployed to protect them. As evidenced by their actions, the RIT crew did not position a hose line to backup crews in the building and, therefore, had to assemble one when they were called upon to engage in an actual rescue during the training exercise.

Recommendation: Determine an accurate water flow needed to include all aspects of the fire training evolution as required by the standard.

4.2.23.2 “A minimum reserve of additional water in the amount of 50 percent of the fire flow demand determined in 4.2.23.1 shall be available to handle exposure protection or unforeseen situations.”

Finding: No evidence suggests the respective exposures were considered, so this standard was not applied.

Discussion: As has been discussed previously, exposures and unforeseen situations were not discussed and do not appear to have been considered.

Recommendation: Determine the appropriate fire flow and make available the reserve water supply needed as required by the standard.

4.2.23.3 “Separate sources shall be utilized for the supply of attack lines and backup lines in order to preclude the loss of both water supply sources at the same time.”

Finding: Only one fire engine utilizing one water source was used to supply both the attack and RIT lines.

Discussion: Both hose lines that were used to attack the fire were taken from the Training Academy’s fire engine. When the RIT was activated by Lieutenant Crest, they did not have a hose line ready for service. According to Lieutenant Barry Broyles, he approached EVD Angela Jasper, the pump operator of the fire engine, and asked her for a hose line. She told him that she did not have one available and that he would have to assemble one.

Broyles and his crew obtained three sections of hose from the Training Academy utility vehicle that was parked nearby, hooked them together, and then attached the assembled hose line to the same fire engine from which the other hose lines originated. As a result, all three hose lines originated from the same fire engine. If, for some reason, the fire engine was unable to supply water to the fire, all three hose lines and the crews that employed them would have been in serious jeopardy.

Recommendation: Provide at least two separate sources of water per the standard.

4.2.25 “Prior to conducting actual live fire training evolutions, a pre-burn briefing session shall be conducted for all participants, in which all facets of each evolution to be conducted are discussed and assignments made for all crews participating in the training session are given.”

Finding: The briefing session did not include all participants of the evolution.

Discussion: The Training Academy staff and the adjunct instructors participated in a briefing session, but none of the students were included; a serious omission. It appears that all of the

instructors returned and briefed their crews on what their assignments would be, but provided varying levels of instructions and guidance with respect to the tasks assigned.

The students who comprised Truck 1's crew advised that they had several questions of Captain Lago, but his response was he did not have time to answer questions, presumably due to the fact that the fires had already been ignited. Lieutenant Broyles only told his students that they were the RIT crew and did not provide any guidance beyond that. When they were activated, they were not prepared, and their entry into the building was delayed.

Recommendation: The pre-burn briefing should include all participants per the standard. This would allow the opportunity for any questions to be asked and allow everyone involved to have a firm understanding about what will be taking place.

4.2.25.2 "A pre-burn plan shall be prepared and shall be utilized during the pre-burn briefing sessions."

Finding: There is no evidence a pre-burn plan was prepared. In addition, the verbal plan that was described at the pre-burn briefing did not correspond to what was actually done.

Discussion: The only documentation that could be construed as a pre-burn plan is several rudimentary drawings, presumably by Division Chief Hyde (Appendix B), that were included in his package presented to Battalion Chief Bull on February 12. The drawings provide a basic layout of 145 South Calverton Road, but do not specify the number and location of fires.

EVDs Wenger and Hiebler, the crew leaders of Engine 1 and 2, respectively, both stated that the pre-burn briefing by Lieutenant Crest advised there would be fires on the second and third floors. Both stated that they were not advised there would be a fire on the first floor. Hiebler stated that someone talked about the possibility of a fire on the first floor, but someone else said that it was a bad idea. Hiebler could not recall who stated that it was a bad idea, but he himself thought it was not wise to have a fire on the first floor.

Crews entered the building not expecting a fire on the first floor. The first crew (Engine 1) entered the building through the front door and did not even see the fire. The second crew (Engine 2), who were supposed to proceed to the second floor, encountered the fire and had to extinguish it before carrying on with their assignment. As previously mentioned, this caused a delay in their reaching the second floor and allowed the fire to burn uncontrolled. A definitive, documented plan would have alleviated any confusion and allowed the crews to have a better understanding of what was to transpire.

Recommendation: Have a documented, well-defined plan available during the pre-burn session. Ensure all participants are familiar with the plan and all questions are answered.

4.2.25.3 "All features of the training areas and structure shall be indicated on the pre-burn plan."

Finding: As with the previous item, a pre-burn plan was not done, so the features mentioned in this item were not completed.

Discussion: The basic drawings in the package Hyde submitted cannot be considered a plan that indicates the features mentioned in this item. Since the drawings and other documentation were not submitted until February 12, the investigative team was unable to determine if these documents were available during the pre-burn session.

Recommendation: Develop a pre-burn plan and include such features as specified in the standard.

4.2.25.4 “Prior to conducting any live fire training, all participants shall be required to conduct a walk through of the structure in order to have a knowledge of, and familiarity with the layout of the building and to facilitate any necessary evacuation of the building.”

Finding: Instructors and students alike advised this was not done.

Discussion: Chief Hyde was the only person who stated that everyone walked through the structure. When asked about a walk through, Lieutenant Crest advised it did not occur and students were only in the building to prep for the exercise. It was determined that not all of the students were involved in preparing the building, so some of them were not afforded the opportunity to enter the structure at all prior to the live fire training evolution.

None of the students indicated having had an opportunity for a walk through of the building. Those who did not assist with the preparation had no idea as to the layout of the building and stated so in their interviews. FPA Strawsburg stated that she asked for a walk through of the building and was told ‘no’. She then asked if she could just look inside the building and again was told ‘no’. Strawsburg declined to identify the instructor with whom she spoke. FPA Robinson stated that he asked Lieutenant Broyles about a walk through at the training exercise on February 8, only to be denied. The reason given was if an individual was detailed to, or had a fire in another district, he would not know the layout of the building.

The investigative team was unable to determine if the instructors completed a walk through of the building. They may have been present while the building was being prepared, but a formal walk through was not accomplished. The walk through is intended to give all, including students and instructors, knowledge and familiarity with the building and its planned exit ways.

Recommendation: Provide a thorough walk through of the building for all participants per the standard. Document the fact that a walk through was completed and the time it was accomplished. Those not participating in the walk through should not be allowed inside the structure.

4.3 Fuel Materials

4.3.2 “Unidentified materials, such as debris found in or around the structure that could burn in unanticipated ways, react violently, or create environmental or health hazards, shall not be used.”

Finding: Debris, such as tree branches, mattresses, and a tire were found in the rear room of the first floor.

Discussion: As mentioned previously, the materials in this room were ignited, causing a fire that was unanticipated by those entering the structure. The fire, and attempts to extinguish it, caused a delay for the second crew (Engine 2) entering the structure. This delay caused the fire on the second floor to burn uncontrolled, which lead to a rapid build up of heat that appeared to have been a major contributing factor to the fatal injuries sustained by Racheal Wilson and the injuries incurred by Ryan Wenger and Stephanie Cisneros.

Recommendation: Remove debris and unidentified materials, as specified by the standard.

4.3.4 “Fuel materials shall be used only in the amounts necessary to create the desired fire size.”

Finding: Contrary to the standard, multiple fires were set and an excessive amount of materials were used in the building.

Discussion: According to the documentation provided by Chief Hyde, eleven bales of excelsior and ten pallets were used inside the building. The manner in which the fires were constructed, plus the debris left on the first floor, caused an excessive fuel load.

Eleven bales of excelsior, when separated, creates a large amount of surface area that can ignite and burn rapidly. It was mentioned that excelsior was placed in the open spaces of the ceilings and stuffed behind the sheetrock in the walls. In addition, unburned excelsior was found in the heat vents throughout the structure.



Those involved with igniting fires in the building mentioned that some of the pallets were placed in a “teepee” formation, as shown previously in this report. In this type of configuration, one pallet is laid flat on the floor to serve as a base, while two others are placed on end on top of the base and leaned against each other. The result is a configuration that resembles a teepee or triangle. Excelsior was in the open area of the teepee. Other single pallets were leaned against a wall, with excelsior in the void space between the pallet and the wall.

Excelsior otherwise not used for the fires set above was dispersed at various points throughout the dwelling and ignited. As an example, EVD Norman Rogers, one of the ignition officers, stated that a basketball size mound of excelsior was located on the second floor hallway and Crest instructed him to light the material.

The pallets and excelsior appeared to account for the majority of the fires that were set in the building. An additional fire was ignited in the debris on the first floor. EVD Rogers, and FF/PM Lee, under the direction of Lieutenant Crest, were in the building and ignited fires. They admit igniting multiple fires on the second and third floors, but none of them admit lighting the fire on the first floor. As has been mentioned, this created an obstacle for the crew entering the rear of the structure.

Excelsior was ignited throughout various locations in the structure, making it difficult to determine the exact number of fires that were actually set in the building. Lieutenant Crest, during his interview with the investigative team, stated that he did not consider the lighting of a pile of excelsior in a bath tub, which is what occurred on the second floor, as a fire. Given all of the information available, the investigative team cannot specify the exact number of fires within the structure, but without hesitation state there were multiple fires ignited throughout the building. Obviously, this greatly exceeds the standard of one fire at a time.

During the investigative team's third site visit to South Calverton Road on April 25, each room of the dwelling was examined in detail. The debris and unburned material that remained was examined and moved to a different area, or was removed from the structure. Based on the statements as to how the fires were constructed, combined with the observations of the investigative team, it appears as though there may have been more pallets used than the ten Chief Hyde noted in his documentation.

The explanatory material for this item states that an excessive fuel load can contribute to conditions that create unusually dangerous fire behavior, which can jeopardize structural stability, egress, and the safety of participants. In this incident, however, the fire behavior was predictable and should have been anticipated. This failing jeopardized crew egress and the obvious safety of the participants.

Recommendation: Limit the amount of material used as specified in the standard.

4.3.5 "The fuel load shall be limited to avoid conditions that could cause an uncontrolled flashover or backdraft."

Finding: The fuel load was excessive and contributed to what could be described as a flashover.

Discussion: The fuel load and the manner in which fires were started have been discussed previously. A flashover occurs when a room and its contents are heated to a point where the entire area ignites virtually at the same time. This is considered a very dangerous time for firefighters in the area. Although a flashover has not been documented, FPA Angel Perez reported feeling a rush of air, followed by passing fire, as he and FPA Ben Lichtenberg sat on the

stairs leading to the third floor. This occurred just prior to, or during the period of time in which Paramedic Cisneros and FPA Wilson were trying to exit the building.

Recommendation: As mentioned in 4.3.4, limit the fuel load in the building.

4.3.7 “The instructor in charge shall assess the selected fire room environment for factors that can affect the growth, development, and spread of fire.”

Finding: Lieutenant Crest, the instructor in charge, was involved in the construction of the fire sites in multiple rooms and accompanied the ignition officers while lighting the fires.

Discussion: The explanatory material for this section notes that the instructor in charge is concerned with the safety of participants and the assessment of conditions that can lead to rapid, uncontrolled burning, commonly referred to as flashover. As mentioned previously, FPA Perez described what could be considered a flashover on the second floor.

There is no question that combustible materials were ignited in multiple rooms, all under the direction of Lieutenant Crest. The issue of multiple fires was addressed in the appropriate section. Crest was not only aware of the method in which the fires were constructed, but also passed through the room on the first floor that was loaded with debris and did not express concern. As the Incident Commander, Crest should not have been the individual who accompanied the Ignition Officers in the building, an issue that is discussed elsewhere in this report.

Recommendation: Insure the instructor in charge and all other instructors are intimately familiar with NFPA 1403 by providing a training program for all Training Academy staff and any adjunct instructors who are utilized to participate in live burn training evolutions.

4.3.8 “The instructor in charge shall document fuel loading, including all of the following:

1. Furnishings
2. Wall and floor coverings and ceiling materials
3. Type of construction of the structure, including type of roof and combustible void spaces
4. Dimensions of the room.”

Finding: No documentation has been provided or located that documents the above.

Discussion: The explanatory material talks about plotting the expected avenues of fire spread and the time factors for expected build up of fire providing an extra degree of safety. It also mentions that void spaces can result in sudden and unexpected vertical spread of fire and the fact that it can trap participants.

In addition to the lack of documentation, it is apparent the information in the explanatory material was not considered. Void spaces and the fact that ceilings had been removed prior to the training exercise should have been considered prior to starting fires and sending personnel in

the building. Had this been considered, students may not have been placed in the positions they were in, and the tragedy may not have occurred.

As has been discussed earlier in the report, exits were not discussed with the participants, nor is there any evidence primary and secondary exit paths were planned.

Recommendation: Document fuel loading, fire spread characteristics, and primary and secondary exit paths for the participants.

4.3.9 “The training exercise shall be stopped immediately when the instructor in charge determines, through ongoing assessment, that the combustible nature of the environment represents a potential hazard.”

Finding: Lieutenant Crest had the authority, but did not stop the exercise.

Discussion: The explanatory material states that injuries and deaths that occurred during live fire training exercises did not take into account fire growth dynamics. It goes further to state that fire growth is linear until the flame height reaches the ceiling, then rapid acceleration can be expected. The standard talks about measures that can be taken to reduce rapid fire growth.

Personnel involved with the training exercise apparently did not take this into consideration. Unfortunately, factors were present that contributed to rapid fire growth. The amount of material used, the lack of ceilings in certain rooms, and the debris on the first floor were all contributing factors that should have been eliminated.

As Instructor in Charge, Lieutenant Crest supervised most aspects of the training exercise and should have been aware of the hazards that existed and that violated NFPA 1403 prior to starting the live fire exercise. The investigation revealed that Lieutenant Crest did not stop the exercise until after conditions had deteriorated and he began aware of attempts to rescue FPA Wilson.

Recommendation: The Instructor in Charge should be accountable for all aspects of site preparation and hazard identification on any live fire training exercises.

4.4 Safety

4.4.2 “The Safety Officer shall have the authority, regardless of rank, to intervene and control any aspect of the operations when, in his or her judgment, a potential or actual danger, accident, or unsafe condition exists.”

Finding: Division Chief Hyde, who was the Safety Officer, did not intervene or control the numerous unsafe aspects of the training exercise.

Discussion: Chief Hyde was not only the Safety Officer, but was also the ranking officer at the location. He should have been aware of the multiple safety violations that were in the process of occurring but did nothing to stop them. He was aware of the debris on the first floor and the fact

that multiple fires were to be ignited. He stated that a walk through of the building was done by the participants that conflicted with statements of both instructors and students present that day.

Recommendation: The Safety Officer should be thoroughly familiar with the standard and be held accountable at all times for its proper application.

4.4.3 “The responsibilities of the Safety Officer shall include, but shall not be limited to, the following:

1. Prevention of unsafe acts
2. Elimination of unsafe conditions.”

Finding: Division Chief Hyde, as the Safety Officer, did not prevent unsafe acts, eliminate numerous unsafe conditions, nor did he prevent the exercise from continuing when those violations were present.

Discussion: Multiple safety violations occurred during the training evolution, including the setting of multiple fires, the condition of the building, the lack of a separate water source for backup crews, participants entering the structures without the proper safety equipment, and instructors leading crews inside the building without radio communication, among others. Chief Hyde was aware of, or was responsible for many of the issues pertaining to the training evolution and as the Safety Officer, did not prevent unsafe acts or eliminate unsafe conditions.

Recommendation: Hold the Safety Officer accountable for violations of the standard.

4.4.4 “The Safety Officer shall provide for the safety of all persons on the scene, including students, instructors, visitors and spectators.”

Finding: Division Chief Hyde did not provide for the safety of all persons on the scene.

Discussion: As mentioned above, not all of the instructors who led crews into the dwelling were equipped with radios. As a result, they could not communicate with the instructor in charge, thus they were unable to advise anyone of the emergency that was occurring within the structure. Numerous students and instructors entered the building without PASS devices. It was also reported that at least one instructor entered the building without a Nomex hood in place. None of the participants mentioned in the above statements should have been allowed to enter the building until the situation was corrected.

Recommendation: Hold the Safety Officer accountable when violations pertaining to safety occur.

4.4.5 “The Safety Officer shall not be assigned other duties that interfere with safety responsibilities.”

Finding: Division Chief Hyde became involved in operational duties and was not limited by his role as Safety Officer.

Discussion: During his interview with BCFD investigators, Hyde stated that once the first engine crew passed the fire on the first floor, he instructed another crew to enter the dwelling and extinguish the fire. This is an operational decision and should have been made in concert with the Incident Commander, Lieutenant Crest. Once the emergency occurred, Chief Hyde reported that he and Lieutenant Crest took a ladder to the rear of the structure. As the emergency transpired, Hyde made several requests via his radio that could be considered operational decisions (See Appendix C).

Although it is difficult to predict the behavior and response of individuals given the situation they encountered, it is evident that Hyde did not limit his responsibilities to that of the Safety Officer alone. He clearly became involved in making operational decisions when the emergency occurred. Once that occurred, it does not appear as though anyone assumed the responsibilities of the Safety Officer. Chief Hyde, as a Division Chief, should have considered assuming the role of the Incident Commander and delegating the responsibility of the Safety Officer to another individual.

Recommendation: The individual assigned as the Safety Officer should fulfill the duties and responsibilities of the Safety Officer and not assume any other role, regardless of the situation until delegating that responsibility to another officer.

4.4.6.2 “Backup lines shall be provided to ensure protection for personnel on training attack lines.”

Finding: Backup lines were not provided.

Discussion: A RIT was assigned to the exercise, with Lieutenant Broyles leading a crew of three FPAs. However, they did not prepare a backup hose line and had to assemble one when called upon by Lieutenant Crest. By the time they assembled a line and started to enter the building, they were ordered to retreat by Crest, as other crew members appeared to be gaining control of the fire.

During his BCFD interview, Lieutenant Broyles stated he was upset that his crew had not prepared a hose line in advance. It should be noted that Lieutenant Broyles was supervising FPAs who in a training status and should not have been expected to be aware of the responsibilities and complexities of that assignment.

The standard does not specify the qualifications of personnel that should employ the backup lines and act as a RIT. However, this is an important function, as it is essential that the RIT crew be prepared to engage in an incident where firefighters could be down or trapped. Utilizing FPAs to act as a RIT team during a training scenario would require closer supervision than was provided.

They eventually participated in the rescue effort, but not together as a RIT. Lieutenant Broyles stated that he entered the building, as the intent was for experienced firefighters to replace the recruits during the rescue effort. However, he did not give instructions to the remainder of his crew and left them unsupervised. As a result, they continued to function in the rescue effort

without supervision. This could have had serious consequences, had they taken incorrect or dangerous actions.

Recommendation: Provide a RIT that is prepared at the start of the training evolution. Ensure the crew is comprised of experienced firefighters, not recruits involved in the class.

4.4.8 “Additional safety personnel, as deemed necessary by the Safety Officer, shall be located strategically within the structure to react to any unplanned or threatening situation or condition.”

Finding: Additional safety personnel were not used.

Discussion: Had the training evolution complied with the standard, additional Safety Officers may not have been necessary. However, given the fact that multiple fires were set throughout the structure, additional Safety Officers, who could have monitored the conditions inside the dwelling, should have been employed. This may have changed the course of what occurred, as the interior Safety Officer could have changed the assignments of the crews in the building, or ordered evacuation of the building altogether.

Recommendation: Consider the use of an interior Safety Officer for all live burns in acquired structures.

4.4.9 “A method of fireground communications shall be established to enable coordination among the Incident Commander, the interior and exterior sectors, the Safety Officer, and external requests for assistance.”

Finding: Effective fireground communications were not established.

Discussion: As previously mentioned throughout this report, the leaders of the first two engine companies that entered the structure were not assigned radios. This was a serious violation and should not have been allowed to occur. EVD Ryan Wenger, the leader of the first crew to enter the building, could not communicate with the Incident Commander to determine what was occurring. Instead, he reached the third floor and had to hang his head out of a window in an attempt to find out why it was so hot. In addition, Crest, the Incident Commander, tried repeatedly to contact Wenger via radio for an update.

The problem of being without a radio did not end there for Wenger. Once he exited and assisted Cisneros out of the building, he had to scream that he needed help with Racheal Wilson. It was only when Cisneros found her way to the third floor roof and located a radio that had been dropped was someone able to communicate the emergency to the Incident Commander.

Recommendation: At a minimum, provide all instructors, crew leaders, and those leading a functional assignment with a radio with which they can communicate.

4.4.10 “A building evacuation plan shall be established, including an evacuation signal to be demonstrated to all participants in an interior live fire training evolution.”

Finding: There is no evidence an evacuation plan was established, nor was an evacuation signal given for all participants.

Discussion: During the numerous interviews conducted by BCFD, NIOSH (with ATF members of the investigative team assisting), and the investigative team, no one mentioned an evacuation plan. A review of both the audio and written transcripts of radio communication (Appendix C) revealed the only mention of evacuation occurred over ten minutes into the event, when Lieutenant Crest advised all units to shut down their hand lines and evacuate the building. A minute and a half later, Lieutenant Eugene Jones, an adjunct instructor, gave the only acknowledgement when he stated that he was the last person exiting the roof. No evacuation signal was given.

The explanatory material mentions that participants should be instructed to report to a predetermined location where a roll call of personnel can take place. This was not effectively done after the building was evacuated, and it does not appear as though a plan was in place. Lieutenant Crest, during his interview with the investigative team, mentioned that they attempted to take a head count of personnel, but due to the ensuing chaos, efforts to do so were ineffective. This could have had catastrophic consequences, had anyone else not been able to exit the building.

Recommendation: Document a building evacuation plan, the evacuation signal that will be given, and a personnel accountability plan in the event evacuation is required. The plan should be reviewed with all participants of the training evolution and the evacuation signal should be demonstrated.

4.4.15 “Only one fire at a time shall be permitted within an acquired structure.”

Finding: There were multiple fires set throughout the building.

Discussion: This may be the most blatant violation of the standard, as multiple fires were set throughout the structure. As previously mentioned, there were various points at which pallets and excelsior were used together to construct fires and other areas in which excelsior only was ignited. The investigative team does not attempt to place a specific number on the total number of fires ignited. The reasoning is discussed in the investigation section of this report. The combination of the number of fires, fuel load, and the condition of the building were all contributing factors in this tragedy.

Recommendation: Strict adherence to the standard.

4.4.17 “Each participant shall be equipped with full protective clothing and self-contained breathing apparatus (SCBA).”

Finding: Some students and instructors were not equipped with a PASS device and it is possible one instructor did not wear a Nomex hood. Further, at least one company officer entered the structure without SCBA.

Discussion: During interviews conducted by BCFD, a number of recruits and instructors stated that they were not equipped with a PASS device prior to entering the structure. In addition, it was mentioned by one recruit that EVD Ryan Wenger did not have a Nomex hood in place. During his interview, Wenger stated that he had a hood in place, but the injuries he suffered would suggest otherwise.

The BCFD Training Academy's PASS devices are not integrated into their SCBA. They apparently place all PASS devices in a box until they are ready for use in training exercises. On the morning of February 9, the box was placed in a certain location and it was up to each individual to obtain his/her own PASS device. Several students stated that they checked each other for the appropriate protective clothing, including the PASS device.

Recommendation: Ensure all participants are equipped with the appropriate protective clothing. Develop another method to ensure issuance and use of PASS devices by all participants in a live fire training evolution, such as a process that requires a safety officer to verify all participants are properly equipped.

4.4.17.1 "All participants shall be inspected by the Safety Officer prior to entry into a live fire training evolution to ensure that the protective clothing and SCBA are being worn properly and are in serviceable condition."

Finding: It is apparent that Division Chief Hyde, as the Safety Officer, did not inspect the participants.

Discussion: As mentioned above, several recruits stated that they checked each other to ensure compliance with protective clothing, SCBA, and PASS devices. They advised that they were taught to observe and inspect each other throughout the academy training. However, none of the students advised that Chief Hyde, or any of their instructors, checked them for the above-mentioned equipment. Recruits should not have to rely on each other to ensure compliance with the standard, without oversight by a competent instructor.

Lion Apparel, a manufacturer of protective clothing for firefighters, examined the clothing Racheal Wilson was wearing on February 9 (See Appendix F). Their report stated numerous deficiencies with her pants. The report also noted that the pants "are beyond their useful life and should be retired". An inspection by the Safety Officer, as specified in the standard, may have detected this problem and made an effort to have her pants replaced.

Recommendation: The Safety Officer should inspect all participants per the standard. The department should develop a checklist or method to document the inspection. The BCFD Training Academy should also perform periodic inspections of protective clothing and remove from service any clothing that is no longer safe to use.

4.4.18 "One person who is not a student shall be designated as the "Ignition Officer" to control the materials being burned."

Finding: There were two Ignition Officers responsible for lighting multiple fires in the building, at Lieutenant Crest's direction.

Discussion: EVD Norman Rogers and FF/PM Tarnisha Lee both were present in the building and were assigned as "stokers", BCFD's term for Ignition Officer. They reported lighting fires on the second and third floors under the direction of Lieutenant Crest, who was with them in the building. It also should be noted that on Division Chief Hyde's documentation and during his interview with BCFD investigators, he noted Lieutenant Eugene Jones as the Ignition Officer. During his BCFD interview, Jones made no mention of the fact that he was involved in the lighting of fires, nor was any evidence discovered that he was.

Recommendation: Use only one ignition officer per the standard.

4.4.18.2 "A charged hose line shall accompany the Ignition Officer when he or she is igniting any fire."

Finding: There is no evidence a charged hose line accompanied the individuals in the building as they lit fires.

Discussion: The purpose of having a charged hose line in the building while a fire is being ignited is to provide protection to the individuals lighting the fire. Given the fact that they ignited multiple fires, the possibility of them being trapped in the building was greatly increased. Chief Hyde, in his BCFD interview, stated that he instructed Crest to have the ignition officers light the fires, starting from the third floor and working their way down to the first floor. The rationale given was so they did not become trapped in the building. During his interview with the investigative team, Lieutenant Crest acknowledged that a hose line did not accompany them inside the building.

Recommendation: Provide a charged hose line for a single Ignition Officer and Safety Officer while the fire is being ignited. Consider leaving the hose line in place throughout the evolution.

4.4.18.3 "The decision to ignite the training fire shall be made by the instructor in charge in coordination with the Safety Officer."

Finding: There does not appear to have been any coordination between Crest and Hyde prior to igniting the fires.

Discussion: The amount of time that lapsed between the time the fires were ignited and the time the first crew entered the building varied, depending on the person being interviewed. A number of participants noted the amount of time to be several minutes, but others stated that it could have been five to ten minutes before the first crew entered the structure. Despite the differences in time, it appears as though some of the crews were not ready, which should have delayed the lighting of fires.

Crest, as the instructor in charge, should have checked with the leader of each crew to ensure they were ready to engage. Once that was established, he could have advised Hyde as the Safety

Officer. At that point, the igniting of fires could have proceeded. In this situation, Crest directed and observed the lighting of fires, something he should not have done as the instructor in charge. By being inside, he was unable to determine the readiness of the crews and, as a result, fires were ignited before the crews were ready.

Several recruits reported during their interviews that they had asked questions of their instructors that went unanswered, due to the urgency in entering the building. The recruits, some of whom were experiencing their first live fire, should not have been required to enter a structure when they still had questions.

Recommendation: The igniting of a fire must be coordinated between the instructor in charge and the Safety Officer. The instructor in charge should not direct and supervise the ignition of the fire.

4.4.18.4 “The fire shall be ignited by the Ignition Officer in the presence of and under the direct supervision of the Safety Officer.”

Finding: Lieutenant Crest, the instructor in charge, actually supervised the ignition of fires, not Chief Hyde, the Safety Officer.

Discussion: As discussed in the previous section, Crest directed and supervised the ignition of multiple fires. Hyde, as the Safety Officer, should have served that function instead. It is unknown as to why the roles were reversed in this situation. It did have an adverse effect, as the crews were unprepared to enter the structure in a timely manner and the fires were allowed to burn an excessive amount of time before crews entered the building.

Recommendation: Only one Ignition Officer is necessary, since only one fire is to be lit, per the standard. Therefore, the Ignition Officer should ignite the fire in the presence of and under the direct supervision of the Safety Officer.

4.5 Instructors

4.5.1 “All instructors shall be qualified to deliver firefighter training, according to the authority having jurisdiction.”

Finding: Several of the adjunct instructors used on February 9 had no instructional background and had not been involved in a live fire training evolution as an instructor.

Discussion: A number of individuals used on February 9 as instructors should not have been used in that capacity. Division Chief Hyde stated during his interview that the only criteria they used was that the individual had to be on the Acting Lieutenant’s list to be employed as an adjunct instructor. Apparently, a background in instructional methodology was not a prerequisite.

Adjunct instructors were notified by various means. Hyde stated that he contacted adjunct instructors directly, but EVD Wenger advised he received a telephone call from “someone from

Engine 8”, who was supposedly friends with Hyde. EVD Hiebler advised that he became involved in the training exercise earlier in the morning of February 9, but did not specify the manner in which he was notified.

It was reported that the reason certain individuals were chosen as adjunct instructors was the fact that they worked on some of BCFD’s busiest companies. Although they may possess a great wealth of knowledge and experience, that alone does not qualify them as instructors. This became clear as the training evolution transpired. During interviews with the investigative team, Battalion Chief William Jones, Captain Terry Horrocks and Lieutenant Crest all expressed concern with the individuals who were used. They cited various reasons, but they all centered around the lack of prior instructional experience.

Recommendation: Develop formal criteria for the consideration and selection of instructors. For those who will actually be involved with the teaching of students in a classroom or practical setting, BCFD should use instructors certified by the Maryland Instructor Certification Review Board. At the very least, anyone used as an instructor should be in the process of obtaining this certification. If this is not practical or possible, those participating as an instructor should be required to submit a résumé or curriculum vitae to the Training Academy. This information should be reviewed by the Training Academy staff to confirm whether or not the individual is qualified to be used as an instructor.

4.5.5 “Prior to the ignition of any fire, instructors shall ensure that all protective clothing and equipment specified in this chapter are being worn according to manufacturer’s instructions.”

Finding: Instructors did not ensure all protective clothing was in place.

Discussion: This issue was addressed in a previous section, but several recruits entered the building without PASS devices being in place. Other recruits stated that their instructors never checked their protective clothing and they instead checked each other.

Recommendation: Instructors shall check all students for whom they are responsible to ensure all protective clothing is in place and is being worn or operated properly.

4.5.6 “Instructors shall take a head count when entering and exiting the building during an actual attack evolution conducted in accordance with this standard.”

Finding: Instructors appear to have taken a head count prior to entering the building, but did not do so upon exiting.

Discussion: One instructor admitted that he did not know the names of all of those assigned to him. He knew the number of recruits, but only knew the names of two of the four who were assigned to him. This could cause some difficulty when strict accountability is required. Lieutenant Crest mentioned that an accountability check was supposed to be performed after everyone was ordered to evacuate, but could not confirm whether or not it was done. He stated that chaos ensued once it was realized there was a true emergency and that contributed to why he could not confirm a head count. Although they were faced with a difficult situation, an accurate

accountability check should have been performed to ensure all participants had exited the building.

Recommendation: Instructors shall perform a head count as specified in the standard and know the names of those assigned to them.

4.5.7 “Instructors shall monitor and supervise all assigned students during the live fire training evolution.”

Finding: Instructors did not effectively monitor and supervise all students during the training evolution and three instructors left their crews.

Discussion: EVD Wenger reported that once his crew reached the third floor, the heat was so intense that he had to drop to his knees. The heat was unbearable even while on his knees, but he apparently did not think about retreating and getting his crew out of the building. It was only when Cisneros approached him and stated that she needed to get out did he decide it was time to leave the building. Proper monitoring of those assigned to him may have given him an indication that his students were not doing well in this environment.

When Cisneros approached Wenger and advised him she needed to get out of the building, he chose to exit through the third floor window first. From this position, he was successful in removing Cisneros, but could not effectuate Wilson’s rescue. Had Wenger remained inside the structure, he may have been able to assist Wilson in her evacuation effort. Wenger tried to reach from the outside and pull her through the window opening, but it was only when Hiebler gained access to Wilson and lifted her legs were they able to remove her from the building. Wenger tried in earnest to rescue Wilson, but his decision to leave the building first impacted his rescue efforts. By leaving the building first, he left behind the four recruits assigned to him.

Another area in which Wenger erred was the management of his crew. FPAs Perez and Lichtenberg, the remaining members of the crew, were left behind on the stairs leading to the third floor when Wenger, Wilson, and Cisneros proceeded to the third floor. They were supposed to provide hose for those on the third floor. When there was no movement in the hose, Perez proceeded to the third floor and found that Wenger and Cisneros had already exited the building. Wilson was at the window and upon seeing Perez, told him to retreat. He and Lichtenberg were unsure as to what to do, so they pulled the hose and nozzle from the third floor and attempted to extinguish the fire on the second floor. Without an instructor to provide guidance, these two FPAs were essentially left to their own device and were fortunate to escape without injury. Wenger admittedly stated that he was not able to directly observe Perez and Lichtenberg and assumed they were pulling hose for those on the nozzle. When dealing with recruits, the instructor must be in close proximity at all times to those who are assigned to him.

EVD Wenger’s overall actions may have been appropriate, had he been on an actual situation with an experienced crew, but he appears to have lost sight of the fact that he was working with recruits, some of whom were experiencing their first live fire training evolution. He should have maintained better control of the crew and not exposed them to the conditions they encountered.

FPA's Perez and Lichtenberg, without supervision, were left on their own to determine their method of escape from the building.

The investigative team was unable to determine what, if any, direction or oversight Captain Lago, an adjunct instructor, provided to his crew. The recruits assigned to Lago stated that they received their assignment from him, but questions they asked went unanswered, as they were told there was no time. This is presumably due to the fact that there was no coordination between the setting of fires and the readiness of the crews. In addition, none of the members of this crew was equipped with a PASS device. This could have presented a dangerous situation, had the recruits become lost or disoriented, not to mention the fact that a lack of a PASS device violated BCFD's policies, which is addressed separately in this report.

Once they entered the structure, it is unclear if Lago adequately monitored the actions of his crew. FPA's Padraic Shea and Tina Strawsburg stated that they did not know where their instructor was during the evolution. FPA Jason Niesser reported that the low air pressure alarm on the breathing apparatus of one of his crew members, presumably FPA John Stevens, sounded and FF/PM Tarnisha Lee, who was in the building, instructed the crew to leave immediately. There is no indication as to where Lago was at the time, but he apparently was not in a position to provide instructions to his crew.

FPA Tina Strawsburg, a member of Lago's crew, somehow became separated from the remainder of the crew. She was able to hear the calls for help and could not locate other members of her crew. At this point, she decided that she needed to get out of the building. She proceeded to the third floor, where she was told by Lieutenant Eugene Jones to go down the steps and exit the building. Personnel on the steps prevented her from passing, so Strawsburg returned to the third floor window, where Jones and others assisted her out of the building. It is interesting to note that Strawsburg also required someone to lift her legs to assist her out of the building. What she described was very similar to the manner in which Racheal Wilson was removed from the building, as EVD Lotz was assisting her from outside and Jones and others from the inside. Had Captain Lago maintained the integrity of his crew, Strawsburg would not have been exposed to the situation she encountered. During her BCFD interview, Strawsburg was emotional and mentioned the fact that her instructor did not remain with the crew. She reiterated the same during a repeat interview with the investigative team.

Lieutenant Broyles left his crew once an emergency became evident. He and his crew were assigned as RIT and initially entered the building at the request of Lieutenant Crest. This occurred when Crest could not contact Wenger. Shortly after they entered the building, they were told to withdraw when it appeared as though the crews inside were gaining control of the fire.

Once they were outside of the building, the first reports of a firefighter down were received by radio. Broyles re-entered the structure with the crews of Engine 14 and Truck 10, while the FPA's assigned to him took a ladder that was placed to a second floor window and placed it to the second floor roof. This crew, if truly performing as a RIT, should have remained together and performed tasks as assigned by the Incident Commander.

Lieutenant Broyles, during his BCFD interview, stated that the intent was to replace the recruits with experienced personnel during the rescue effort. This is understandable, given the situation. However, Broyles should have given his crew instructions as to where to go and what to do. Instead, he left them without direction and they continued to be engaged in the rescue effort. This could have caused serious harm to the crew or others, as they were functioning without proper supervision.

Recommendation: As has been mentioned previously, BCFD needs to develop criteria for potential instructors. The instructors shall monitor and supervise all students per the standard.

9.1 General Reports and Records

9.1.1 “The following records and reports shall be maintained on all live fire training evolutions in accordance with the requirements of this standard:

1. An accounting of the activities conducted
2. A listing of instructors present and their assignments
3. A listing of all other participants
4. Documentation of unusual conditions encountered
5. Any injuries incurred and treatment rendered
6. Any changes or deterioration of the structure
7. Documentation of the condition of the premises and adjacent area at the conclusion of the training exercise.”

Finding: Documentation provided pertaining to the live fire training exercise was inadequate and incomplete.

Discussion: Division Chief Hyde presented a package of information to Battalion Chief Carl Bull of the Fire Investigation Bureau (Appendix B). According to Chief Bull, this package was presented to him at his request on February 12, three days after the incident. Since Hyde was advised by his attorney not to participate in the independent investigation, the team could not determine precisely when the documentation was completed. However, if it was available on February 9, one could assume that it would have been presented then.

Item 1 above specifies an accounting be reported of activities conducted. No documentation was received that would indicate what activities were conducted on February 9. Since there was a live fire training evolution in an acquired structure on February 8, the investigative team requested the records and reports from that exercise. There was very little documentation provided from the February 8 exercise and it also did not include an accounting of activities conducted.

Item 2 requires a listing of instructors present and their assignment, which was included in the documentation provided by Hyde. The documentation, however, was inconsistent, as Lieutenant Eugene Jones was listed as the Ignition Officer and it does not appear as though he functioned in that capacity. Item 3 pertains to other participants, the documentation of which was provided.

Documentation of unusual conditions encountered, as specified in Item 4, was not provided for the exercises that occurred on February 8 and 9. The training evolution on February 8 was marred by the fact that two injuries occurred. Battalion Chief William Jones stated that he was initially told by Hyde that the injuries occurred from a sudden shift in the wind, which caused heat and smoke to blow back on those who were injured. There is no documentation that supports that claim. As for Item 5, injury reports were completed for those who were injured on February 8, but they were not part of the documentation for the training exercise. They were obtained by the independent investigative team upon a request from BCFD.

Changes or deterioration of the structures were not documented on February 8 or 9, as required by Item 6. The training evolution on February 8 resulted in a significant change in the structure, but it was not documented. Item 7 requires documentation of the condition of the premises and area upon completion of the exercises, but it was not completed.

Recommendation: Documentation, as specified, shall be completed as soon as practical upon completion of the live fire training evolution and maintained in a file at the Training Academy.

9.1.2 “For acquired buildings, records pertaining to the structure shall be completed.”

Finding: Records were not completed, or were not made available.

Discussion: As has been previously discussed, most of the required records pertaining to the structure were not completed. Repeated attempts by the current Training Academy staff to locate such records were unsuccessful.

Recommendation: Complete and maintain appropriate records per the standard and maintain them in a file that is readily accessible.

9.1.4 “A post-training critique session, complete with documentation, shall be conducted to evaluate student performance and to reinforce the training that was covered.”

Finding: Documentation was not provided that would indicate a critique was held, nor was student performance evaluated.

Discussion: Documentation of student performance, particularly deficiencies, is essential. As an example, it was mentioned by one instructor that Racheal Wilson and another student attempted to place a ladder during the exercise on February 8, but they lost control of it and it fell. This is a serious issue and should have been documented.

It is understandable why a critique was not conducted and the associated documentation was not completed after the fatal exercise on February 9. It was, however, in effect, replaced by the initial investigation conducted by the BCFD’s Bureau of Fire Investigation.

Recommendation: Provide the appropriate documentation per the standard. In cases where individual student performance is documented, the documentation shall be placed in the student’s training file.

General Comments: The investigative team found that many of the required components of NFPA 1403 were not followed during the live fire training evolution. The team discovered evidence that the students, although they met the prerequisites, may not have been adequately trained to participate in a live fire training evolution in an acquired structure. In addition, the adjunct instructors who were used had no prior experience as instructors and should not have been used for the training.

Discussion of BCFD's Manual of Procedure

The Baltimore City Fire Department has a number of policies that are described in their Manual of Procedure (MOP). As a result of the events that occurred on February 9, a request was made by the investigative team for certain policies that would address various training and operational requirements. A review of these policies revealed numerous violations that are discussed in the following material.

Violations of BCFD's Manual of Procedure

MOP 106-3 – Shift Safety Officer-Duties

Finding: This policy was not followed at the training exercise on February 9.

Discussion: The policy specifies the duties and responsibilities of the Shift Safety Officer (Appendix I). Due to a breakdown in communication between Division Chief Hyde and Battalion Chief Jones, a Shift Safety Officer was not available and therefore, was not on location at 145 South Calverton Road. Chief Hyde was the designated Safety Officer for the training and should have assumed the role of the Shift Safety Officer.

The breakdown in communications occurred due to a misunderstanding of an email from Chief Hyde to Chief Jones (Appendix J). Hyde advised Jones that the class would be burning a structure on Sinclair Lane on February 8. He stated that he had plans for February 9 as well. Chief Jones advised the investigative team that he thought the training exercise on February 9 was at the Sinclair Lane location as well. Hyde's email is not specific as to where the training on February 9 was going to take place.

In addition to the violations of NFPA 1403 that have already been discussed, certain aspects of MOP 106-3 were violated as well. Compliance with NFPA 1403 would have taken care of most, if not all of the items in the MOP.

Recommendation: A representative from the Safety and Health Office should be present at all live fire training evolutions. If this is not practical or possible, the designated Safety Officer should have appropriate training to serve in that capacity.

MOP 601 – Fireground Operations and Command

Finding: Lieutenant Crest was designated as the Incident Commander at the start of the training evolution, but command of the incident deteriorated as the incident progressed.

Discussion: This is an area in which it is difficult to be critical of the actions of those involved, as the situation encountered is one that, fortunately, has not been experienced by many. It is doubtful the outcome would have been altered, but the lack of clear command must be discussed.

Lieutenant Crest was designated as the Incident Commander for the evolution. Division Chief Hyde assumed the role of the Safety Officer. Battalion Chief 3, William Hoffman, was on location to observe and remained in service until the emergency occurred at the training site.

At the beginning of the evolution, Crest identified himself as Command while communicating via radio, as defined in the radio designation section of MOP 601. He did not, however, provide a description of the incident location, such as South Calverton Command, as specified in the policy. This is a minor point, but the actions during a training exercise should follow departmental policies and closely resemble what is practiced.

Battalion Chief Hoffman, during his BCFD interview, stated that he was aware that something was occurring within the building, but he was not sure what was wrong. He then instructed the personnel from Engine 14 and Truck 10 to enter the structure and assist. During his interview with BCFD, Division Chief Hyde stated that he instructed Hoffman to have his personnel assist. There is no evidence the Incident Commander was consulted prior to this taking place, or approved the action. Whoever made the decision to engage the stand-by personnel is immaterial, but it should have been made through the Incident Commander.

The additional personnel who entered the building may have contributed to the chaos and led to an extraordinary amount of people in the structure. In addition, Brian Krohn, a Lieutenant from Truck 10, entered the structure without breathing apparatus and ordered Paramedic John Stevens to remove his breathing apparatus while still inside. Stevens did as he was told and gave his breathing apparatus to Krohn. Lieutenant Krohn then told Stevens to leave the building, which is what he did.

With the exception of those who assisted with carrying Racheal Wilson down the ladder, minimal assistance was provided by those who entered the structure. Although the decision to engage stand-by personnel may have been reasonable and prudent, it should have been communicated with the Incident Commander.

A review of radio communication from the incident revealed Chief Hoffman also requested resources, specifically Rescue 1, to the scene. This was not communicated through the Incident Commander, which is what should have occurred.

Kenneth Hyde, as the Division Chief, should have assumed command when the situation deteriorated. He did not do so, as Lieutenant Crest continued to identify himself as Command

throughout the entire operation. He did, however, request additional resources, requests that should have been made by the Incident Commander.

Lieutenant Crest, in his BCFD interview, stated that he entered the structure two separate times to see what was happening. Later, he and Hyde took a ladder to the rear of the building when they heard a firefighter was down. As the Incident Commander, Crest should not have been involved in carrying out tasks that would have inhibited his ability to make decisions. MOP 601 (Appendix K) states that “strong, direct, and visible command will be established”. An Incident Commander cannot be visible to others on the fireground if he is inside a building or on its roof.

As has been demonstrated in the above paragraphs, Lieutenant Crest, Battalion Chief Hoffman, and Division Chief Hyde all made decisions or requests that could have been considered command decisions. Command should have been transferred, per BCFD policy, to Division Chief Hyde, who then would have functioned as the Incident Commander.

Recommendation: If a Training Academy officer delegates authority for command of a training evolution to a subordinate officer, the senior officer should not assume another position, in the event he/she is needed to assume the role of Incident Commander. All personnel should follow MOP 601 during training evolutions.

MOP 602 – Fireground Operations and Command-Staging

Finding: Additional engine companies were not used in accordance with this policy.

Discussion: For Level I Staging, the policy states that “The third engine will lead off from the hydrant, spot the pumper and be prepared to supply hand line, deluge stream, et cetera” (Appendix L). The same is addressed in MOP 602-1, Fireground Operations Standard Operating Procedure-Engine. This would seem to indicate that a second water supply source is required on incidents, such as the one practiced on February 9. In addition, NFPA 1403 also states that two separate sources of water be used for live fire training evolutions in acquired structures. It has been shown previously that only one water source was used for this event.

Recommendation: Obtain two separate sources of water supply in accordance with MOP 602 and NFPA 1403.

MOP 602-6 – Fireground Evacuation Plan

Finding: The fireground evacuation plan was not used at the training exercise on February 9.

Discussion: All personnel in the building at 145 South Calverton Road were ordered to evacuate by Lieutenant Crest, but the proper procedure was not followed. At approximately 1159, Crest advised via radio “Command to all units. Shut down the hand lines. Evacuate the building” (Appendix C). According to the MOP (Appendix M), the Incident Commander should have advised Fire Communications to broadcast the evacuation message. Communications would also sound what is defined as Emergency Traffic tones. All apparatus on the fireground should have

sounded their air horns for one minute. Lastly, a head count was supposed to have been taken, once everyone had exited the structure.

Communications was not advised to broadcast the evacuation message, nor were they requested to sound the Emergency Traffic tones. This may have been difficult to accomplish, as Communications does not often monitor a training incident, unless requested to do so. However, the air horns were not sounded by the apparatus on the scene and a head count was not completed following the evacuation. In an interview with two members of the investigative team, Lieutenant Crest stated that they tried to do a head count, but given the chaos and injuries, he stated that they did not know how to account for everyone. This was also noted as an issue during the discussion of NFPA 1403. Compliance with the standard would have ensured each participant was aware of the evacuation plan.

Recommendation: Inform all participants of the evacuation plan in accordance with NFPA 1403 and MOP 602-6.

MOP 602-8 – Rapid Intervention Team (Two-In, Two-Out)

Finding: The Rapid Intervention Team (RIT) was not prepared and did not act in accordance with the MOP.

Discussion: Although it is not specifically addressed in NFPA 1403, MOP 602-8 states that the members acting as part of two-in, two-out, must be trained to at least the Firefighter II level (Appendix D). This creates a dilemma in a training environment. There is a feeling that recruits in a training environment should experience many of the job functions they will face in the field, including participation as a member of RIT. One thought is recruits can serve as RIT, provided they are accompanied by an instructor. The opposing view is, in the event of a true emergency, it is unknown how recruits will respond as members of RIT, given their limited experience. With that in mind, the thought is RIT should be staffed with experienced personnel, not recruits.

Soon after the emergency with Racheal Wilson occurred, Lieutenant Barry Broyles, the leader of RIT, stated that he was pulled from his crew to assist with the rescue. The reason he stated was that they were trying to replace the recruits with experienced firefighters to assist with the rescue and extinguishment of the fire. In addition, Broyles stated that he was comfortable with the three individuals assigned to him as part of RIT, but he would not have been comfortable with others in the class. This supports the view that recruits should not be used as RIT.

The rescue of “one of your own” is probably the most stressful situation firefighters will encounter in their entire career. The personnel sent to rescue that individual should be highly trained and extremely competent. An actual rescue of a fellow firefighter may not be the time to determine whether a group of recruits, led by an experienced officer, can be effective in that situation. It does, however, appear as though the recruits assigned to RIT reacted appropriately and functioned well until they were relieved.

Another factor on February 9 was that RIT was not prepared to enter the structure as defined by the MOP. Although BCFD’s MOP does not identify a hose line as equipment that should be at

RIT's immediate disposal, the team that was designated for this evolution had to assemble a hose line that was obtained from a Training Academy utility vehicle that was positioned nearby. The line, in turn, then had to be assembled and attached to the pumper supplying water for the exercise. In addition, RIT was not equipped with the equipment and tools that are specified in the MOP.

Recommendation: The RIT should be made up of experienced personnel, trained to the standard as specified in MOP 602-8. The team should be equipped per the standard and remain ready to respond at all times.

MOP 622-3 – Personal Alert Safety System (PASS)

Finding: At least two instructors and four students were not equipped with a PASS device.

Discussion: MOP 622-3 (Appendix N) states “The Super Pass II will be activated and worn at all times when operating in emergency situations i.e. (fireground, Hazmat, collapse rescue, cave-ins, etc.)”. The training exercise certainly dictated the need for all participants to wear a PASS device. One student stated that she distributed PASS devices to those in her group and asked her instructor if he wanted one, but he told her he would be fine without one.

The PASS device is an essential piece of personal protective equipment and may be the only means to identify the location of a downed firefighter. Any decision by a firefighter not to wear a PASS device should be questioned and reviewed. Why a firefighter would decline to use a piece of equipment that could ultimately save his/her own life is beyond comprehension. Not only was this a potentially life-threatening decision, but instructors should be mindful of the example they set of the recruits in training.

Breathing apparatus today is manufactured with PASS devices integrated within the system, so use of such a device is not optional. Replacing the current breathing apparatus with a style that has the PASS device integrated would be extremely costly and difficult to accomplish in a short period of time.

Recommendation: It is required for all personnel to wear a PASS device, whether in a training environment, or an actual situation. Those who do not comply should be determined to be in violation of this MOP and dealt with accordingly. The Department should purchase breathing apparatus with PASS devices integrated within the system to avoid the potential for non-compliance.

Division Chief Kenneth Hyde's Documentation

Division Chief Kenneth Hyde presented a group of documents to Battalion Chief Carl Bull on the morning of February 12, 2007 (Appendix B). All of the documents were reviewed and are described in the ensuing section. As with other sections of this report, findings, discussion, and recommendations will be addressed. The documents provided by Chief Hyde include the following:

- Various emails between Hyde, Deputy Chief Theodore Saunders, and representatives of the Department of Housing and Community Development (DHCD).
- A copy of portions of NFPA 1403, Live Fire Training Evolutions.
- A list, presumably prepared by Hyde that indicates the portions of NFPA 1403 that applied to this exercise and compliance with each.
- Baltimore City Fire Academy's Fire Training Building Guidelines, Fire Training Building Check-off Sheet, and Fire Training Building Assignment Sheet.
- A copy of Chapter 6 of NFPA 1403.
- A rough sketch of 145 South Calverton.
- The estimated fire flows for fires on the second and third floors of the dwelling.
- Memo from Lieutenant Crest to Chief Goodwin, describing why the building was chosen.
- List of personnel used as instructors, including their years of experience and whether or not they were certified as instructors.
- List of students at 145 South Calverton.
- List of Training Academy staff assignments and equipment standing by.

Finding: Email threads provided gave conflicting information and may have led to confusion as to whether or not it was acceptable to burn at South Calverton Road.

Discussion: The first email thread provided by Kenneth Hyde began on January 2, 2007 and ended on January 3. It started with emails between Jerome Dorich from DHCD and Chief Saunders regarding potential training sites. Once several sites had been identified, the information was forwarded by Chief Saunders to Chief Hyde, requesting that Hyde advise him of his intentions. The thread included a statement from Dorich, advising that the structures had been condemned and were unsafe for various reasons.

At the request of the investigative team, BCFD provided emails to and from Chief Hyde related to acquired structures (Appendix H). They provided an email thread similar to what Hyde had presented above, but it actually started earlier on January 2, with Saunders making a request to Michael Braverman, Deputy Commissioner of DHCD, for dwellings that could be used for training. He stated that the buildings would not be burned, but used only for pulling ceilings and walls, and cutting holes in the roof. Braverman apparently assigned the request to Jerome Dorich, who corresponded with Saunders from that point. Saunders forwarded the thread to Hyde, which included the list of potential dwellings. In response to Saunders' email, Hyde asked if 143 and 145 South Calverton were ok to use, and Saunders replied that he assumed it was fine to proceed.

The email thread provided by BCFD clearly states that the request for dwellings would not include burning them. This thread was forwarded to Hyde, so he should have been aware that these buildings were not acceptable to burn.

Hyde started another series of emails on January 22 when he asked Chief Saunders for two good dwellings he could burn on February 8 and 9. Saunders replied and asked if there were any left from several weeks prior, but Hyde responded that they had used the good buildings. This email thread was provided by Hyde.

BCFD provided an email thread, initiated by Saunders shortly after Hyde's request (Appendix H). Saunders emailed Michael Braverman, asking for two dwellings that could be burned for training. Braverman responded by giving him the contact information for a developer who had taken possession of property in the Claremont Development off of Sinclair Road. Saunders passed this information on to Hyde, requesting that he contact the developer to determine whether or not they could use the buildings. Since the investigative team did not have the opportunity to speak with Hyde, it is unknown whether he or someone from BCFD made contact with the developer and received permission to burn at the site.

Chief Hyde may have been under the assumption that it was ok to burn at the South Calverton Road location, as Chief Saunders replied to his initial email by asking if there were any dwellings left from the list of several weeks prior. However, Hyde responded by stating that they had used the good buildings. In addition, he had Saunders' prior request to DHCD that stated they were not going to burn the buildings.

Recommendation: A written plan, along with the documentation associated with NFPA 1403, should be prepared well in advance of a training evolution in an acquired structure. This plan should be reviewed and written approval obtained by the Chief of BCFD prior to the evolution taking place.

Compliance with NFPA 1403

Finding: Chief Hyde provided a list of the items that had been completed in compliance with NFPA 1403, Chapter 4, Acquired Structures. Portions of the standard itself were submitted with Hyde's package. He detailed each item that pertained to the exercise, and for the most part, indicated compliance simply by writing "Done". The following paragraphs address the sections of Chapter 4 that applied during this exercise. Since they have been discussed in detail previously, only a summary of the compliance issues are included in this portion of the report.

Discussion: Section 4.1 deals with student prerequisites and states that a student participating in live fire training shall meet the requirements of a Firefighter I. Hyde states "she", presumably Racheal Wilson, "has passed FFI", so he was compliant with the standard. Since all of the students had been trained at the Fire Academy, the remainder of the section did not apply, as Hyde had indicated.

Section 4.2 pertains to the structure and facilities. This is an area in which several of the items that were listed as "Done" were not actually completed. Item 4.2.1 states that the structure must be prepared for the live training evolution. Although Hyde stated it was done, there are conflicting statements from other instructors and students regarding this assertion.

Items 4.2.2 through 4.2.8 pertain to the appropriate permits, proof of ownership, and permission to use the structure. For these items, Hyde lists "HABC", which is presumably an abbreviation for the Housing Authority of Baltimore City. In any event, these documents were not available to the investigative team. Efforts to locate pertinent documentation by BCFD were unsuccessful, so it can only be assumed that it was not done.

Hazardous storage conditions, described in 4.2.9 did not appear to be an issue. Hyde notes that he was compliant with 4.2.10, hazardous structural conditions, but there were numerous reports of holes in the walls and ceilings, that, by the standard, should have been patched. Throughout the investigation, it became evident that holes in the walls and ceilings were not patched.

Item 4.2.11 discusses hazardous environmental conditions that must be removed prior to conducting live fire training. Hyde indicates all of the items listed were done. However, numerous statements indicate there was a large amount of debris in a first floor room, including tires, tree branches, and mattresses. In addition, another individual noticed drug paraphernalia in the room as well. A visit to the site by the investigative team noted a large amount of debris on the first floor. All of this should have been removed to be compliant with the standard.

Item 4.2.12 deals with the identification and evaluation of exits from the building and making sure all participants are aware of them. Hyde indicates he was compliant with this, but student after student stated in interviews with BCFD personnel that they were not made aware of emergency exits from the building. In addition, instructors also stated that the identification and evaluation of exits were not discussed. Item 4.2.13 states a building that cannot be made safe shall not be used. Hyde indicates “Clear” for this item, but it is evident this building was not safe.

Hyde notes compliance with Items 4.2.14 through 4.2.22 and there is no evidence to suggest otherwise, with the exception of 4.2.17. That item speaks of removing combustible materials that are not intended for the training evolution. The debris mentioned on the first floor that was not removed indicates non-compliance with the standard. This material was ignited, either intentionally or non-intentionally, which caused a delay for the second engine company in reaching their assigned location. This delay was critical and is discussed elsewhere in this report.

Item 4.2.23 addresses the water supply and the amount of water needed for each training evolution. The calculations Hyde provided may have been sufficient had he complied with the standard of only one fire at a time. However, the calculations were inadequate, given the volume and number of fires they encountered. In addition, there was only one source of water being used for the evolution, while the standard specifies two separate sources. Hyde indicated he was compliant with the standard for these items, when it is clear he was not. Item 4.2.24 pertains to the placement of apparatus and it appears they were in compliance with that item.

Although Hyde indicates compliance, Item 4.2.25 is an area that was totally in violation of the standard. This item states a pre-burn briefing shall be conducted for all participants. He notes that Lieutenant Crest performed the tasks required to be compliant, but numerous statements by both students and instructors indicated that was not the case. The instructors did receive some sort of instructions, but the students reported they did not receive a briefing. There is no evidence a pre-burn plan was prepared, as nothing in writing has been produced. Another key item was the walk through that was required of all participants. All of the students and most of the instructors stated that a walk through was not done. For item 4.2.25.4, the walk through, Hyde states “Done. All members loaded the structure”. Taped interviews with the students

indicate not all of them were involved with loading the building with materials, nor should this have been considered the walk through that is specified in the standard.

Hyde notes compliance with 4.2.26, the control of spectators and visitors and that appears to be correct. Item 4.2.27, however, states all possible sources of ignition shall be removed from the area. Hyde indicates compliance, but as mentioned previously, a tire, mattresses, and tree branches were present on the first floor.

Fuel materials are addressed in Section 4.3. Hyde indicates compliance with all items in the section, but evidence has shown that not to be the case. Item 4.3.1 notes the fuel used shall have known burning characteristics. On his list, Hyde notes “Done, Accelsior (sic) and Pallets”. This indicates that was the only fuel used, despite the fact that debris was found on the first floor. This debris is addressed in 4.3.2 and notes that it shall not be used. The debris was involved in the fire on the first floor. Items 4.3.4 and 4.3.5 talk about the amount of fuel load to create the desired fire size and to minimize the possibility of flashover or backdraft. Several instructors and experienced firefighters on the scene commented about the size of the fire, leading one to believe that an excessive amount of fuel was used. In addition, one student described what could be considered a flashover.

According to the standard, items 4.3.7 and 4.3.8 are items that shall be documented by the instructor in charge. Specifically, the instructor is supposed to evaluate the selected fire room for various factors and document the fuel loading. This could not have been done, as multiple fires and holes in the walls and ceilings violated the standard. In addition, no documentation has been provided in accordance with 4.3.8. Only a rough sketch of the room dimensions was provided by Hyde.

Hyde indicates compliance with item 4.3.9, which states the exercise shall be stopped when a potential hazard exists. A hazard, described in this item, existed, but the exercise was not stopped until injuries, one of which resulted in death, occurred. Section 4.4, Safety, is another area in which Hyde verifies compliance on his list, but it is obvious that safety standards were not followed. Item 4.4.2 states that the Safety Officer has the authority to intervene and control any aspect of the operation. Hyde indicates this was done, as he was designated as the Safety Officer. However, there is no indication that anyone attempted to intervene until it was too late. Item 4.4.3 was not followed, as Hyde, acting as the Safety Officer, should have been aware of numerous infractions of the standard and did not intervene. Hyde did not provide for the safety of all involved, as indicated in 4.4.4, although he notes on his list that he did.

Continuing with safety, 4.4.5 notes that the Safety Officer shall not be assigned other duties that would interfere with safety responsibilities. Although it is difficult to say what one would do if faced with a similar situation, Hyde became actively involved in the rescue effort, which means he could not, at that point, function appropriately as the Safety Officer.

Item 4.4.6.2 talks about backup lines to ensure protection for personnel. A RIT team was assigned, but they were not prepared and did not have the proper equipment when needed. Hyde indicates this was done, but as the Safety Officer, he should have made sure they were prepared.

Therefore, he cannot claim that they were compliant with this item. Item 4.4.7 mandates that the instructor in charge assign instructors to each crew, and this appears to have been accomplished per the standard.

Item 4.4.9 discusses fireground communications and Hyde notes this as being done. Statements from some of the instructors indicate they were not provided with radios, even though they were assigned key roles in the evolution. This became paramount in the incident, as the instructor leading the crew that encountered trouble could not communicate with anyone outside the building. A building evacuation plan, as required in item 4.4.10 apparently was not established, as no one interviewed could recite the plan. Hyde indicates this was done.

Item 4.4.15 clearly states only one fire at a time shall be permitted, but it has been well documented that there were multiple fires. During his interview, Hyde stated that he was aware of fires on each of the three floors, which is in violation of the standard. He also notes “1 per floor” in the documentation he provided, again placing him in violation of the standard. Item 4.4.17.1 states that all participants must be inspected by the Safety Officer prior to entering a structure. The students advised in their interviews that they had been taught to check each other. The Safety Officer did not do this. Item 4.4.17.5 describes the requirements of PASS devices, but a number of personnel, both students and instructors, did not wear a PASS device as specified in the standard. In his documentation, Hyde indicates compliance with the standard.

The standard, in 4.4.18, states that only one person should be designated as the Ignition Officer. Since only one fire can be set at a time, only one Ignition Officer should be needed. Although Hyde stated that they complied, there were two Ignition Officers. It also states that a charged hose line shall accompany the Ignition Officer. There is no evidence that this was done, which was confirmed by Lieutenant Crest during his interview with the investigative team. Item 4.4.18.3 states that the decision to ignite must be coordinated between the Instructor in Charge and the Safety Officer. This apparently was not done, as there were numerous reports that the crews were not ready when the rooms were ignited. The Safety Officer also is supposed to supervise and be present for the lighting of fires. It does not appear as though this occurred, as the Ignition Officers reported Crest accompanied them during the lighting of fires and Crest confirmed the same.

Section 4.5 describes the roles and responsibilities of instructors. The section basically leaves it up to the authority having jurisdiction as to the qualifications of instructors. Although they may have been compliant, it has been demonstrated that several of those who were used as instructors had little or no experience in a training environment. Instructors, per item 4.5.6, are supposed to take a head count before entering and upon exiting the structure. Each instructor was assigned four students, but there is no evidence to support head counts being performed. Hyde indicates compliance in these areas.

Item 4.5.7 states instructors shall monitor and supervise all assigned students. Hyde states this was done, but the investigative team determined three instructors could not account for all of their students during the evolution. They were left on their own and had to make their own decisions. Two students mentioned the word “abandoned” when asked to describe their feelings while inside the structure.

Recommendation: Provide the appropriate documentation, in writing, prior to the training evolution. This documentation should be part of an incident action plan, which is reviewed and approved by the Chief of BCFD.

Baltimore City Fire Academy Forms

Finding: Documentation that was not required for this incident was provided, but was not necessary, as it did not pertain to acquired structures.

Discussion: These forms and check lists all pertain to the fire training building at the Fire Academy and do not pertain to live fire training evolutions in acquired structures. Although many items on the list pertain to acquired structures as well as fire training buildings, the lists that Hyde submitted were blank, indicating they were never completed. Chapter 6 of NFPA 1403 is included as a reference, but does not apply for this incident.

Recommendation: Develop guidelines and checklists for live fire training evolutions in acquired structures.

Sketches of 145 South Calverton

Finding: The sketches were inadequate and did not reveal the required information.

Discussion: The sketches did not depict the number of fires, or their location. They also did not show placement of hose lines or equipment. Very little information can be gathered from these sketches.

Recommendation: Provide drawings, in advance, that will accurately illustrate the training evolution.

Fire Flows Required

Finding: A calculation of fire flows that would be required was provided, but was not accurate.

Discussion: Calculations were provided for the second and third floors, but none for the first floor. These calculations could have been correct, had NFPA 1403 been followed. However, with the number of fires and the volume, the calculations were inadequate.

Recommendation: Provide a calculation that corresponds with the evolution being completed.

Memo from Lieutenant Crest to Chief Goodwin

Finding: The memo indicated non-compliance with the building used.

Discussion: The memo, dated February 12, 2007, states the reason for selecting 145 South Calverton Road. Crest stated that the building was used previously for horizontal and vertical

ventilation, so he knew it was well vented. This should have been a clue to those involved that this building was not suitable to be used for live fire training.

Recommendation: Conform with NFPA 1403.

List of Personnel

Finding: The adjunct instructors that were used had no documented prior experience as fire training instructors.

Discussion: The list, presumably compiled and provided by Hyde, lists the instructors, their years of experience, and if they were certified as instructors. He notes Crest and Farrar as being MICRB certified. Confirmation with MICRB indicates they were not certified. Hyde stated in his interview that they had completed all of their requirements and were waiting to be certified. MICRB verified that their applications had been placed on hold, pending the outcome of their interim class they were required to teach. Those used as adjunct instructors were not certified. Hyde noted “Every Lead Had Portable”. Presumably, this means all instructors who had served a functional position had a portable radio. This clearly was not the case, as it was found that several instructors who took crews inside the building did not have a radio.

Recommendation: Those used as instructors of students in a live fire training evolution should be certified as an instructor by MICRB.

Students at 145 South Calverton

Finding: The list provided was not consistent with those who were actually on the scene when the incident occurred.

Discussion: Chief Hyde’s list indicates 25 students, with a handwritten 25 circled at the end of the typewritten names. Below the typewritten names is the handwritten name of Jenny Brown. If she was present, she would make 26.

A list provided by BCFD (Appendix O) indicates 22 students actually at the training evolution when it started. Complicating matters was the fact that five students and two instructors arrived at the training site just as the emergency with Racheal Wilson had occurred. If the late arriving students are included, the total number of students present at the training site would have been 27.

Comparison of the two lists reveals that Paramedic Chad Snyder was not included on Hyde’s list, even though he was present at the site and was assigned to Truck 2. This presents a serious concern regarding accountability.

Recommendation: Compile an accurate list of personnel who will be present on the scene and specify their assignments for each evolution.

List of Officers

Finding: The list was not all-inclusive and was not accurate.

Discussion: A basic list of the Instructor in Charge, Safety Officer, Ignition Officer, and RIT officer is provided, along with the personnel filling those roles. This list is not accurate, as it lists Lieutenant Jones as the Ignition Officer. During his BCFD interview, Hyde stated that Jones was the Ignition Officer. Those roles were determined to have been filled by FF/PM Tarnisha Lee and EVD Norman Rogers.

Recommendation: Compile an accurate list of personnel who will be assisting and specify their assignments.

General Comments: This package of information was presented three days after the incident and does not appear to have been completed prior to the training exercise. The package appears to have been hastily assembled and contains information that is inaccurate and false.

Other Issues and Concerns

Finding: Lack of communication between Division Chief Hyde and Battalion Chief William Jones as to the February 9 training exercise.

Discussion: During his BCFD interview, Hyde stated that he made the Safety Officer aware that he would be conducting live fire training on February 8 and 9. In an email obtained from BCFD, Hyde, on February 7, advised Jones that the recruit class would be burning on February 8 in Claremont, off of Sinclair Lane (Appendix J). The purpose of the email was to advise Chief Jones in the event he wanted to send a Safety Officer to the training. Hyde ended the email by stating he would be burning on February 9 also, but did not specify the location.

Chief Jones acknowledged Chief Hyde's email by thanking him for the notification and advised he would see him, presumably meaning that someone from the Safety Office would be present. Jones sent Lieutenant Michael Savino from the Safety Office to the training exercise on February 8. According to Chief Jones, Lieutenant Savino addressed a couple of concerns with Chief Hyde prior to the start of the training. Those concerns were corrected and the training was allowed to proceed. However, shortly before the training started, Lieutenant Savino was summoned to the scene of a working incident elsewhere, thus leaving the site without a representative from the Safety Office. Other issues pertaining to the training exercise of February 8 are addressed elsewhere in this report.

Chief Jones was under the impression that the Training Academy would be returning to Sinclair Lane on February 9. Since Savino had been there on February 8, he did not see a need to send someone from his office, since the safety concerns had apparently been addressed. Hyde's email to Jones does not specify that the location of the training would be on South Calverton Road on February 9. His email was composed on the evening of February 7 at 6:12 p.m. This is too late to advise anyone of upcoming training activities, as it is quite possible that Jones would not have

had the opportunity to read the email prior to the start of the exercise. Fortunately, Chief Jones read and responded to Hyde's email at 10:08 p.m. and was able to assign someone to the exercise.

Recommendation: As has been mentioned previously, a written, detailed plan must be provided well in advance of live fire training in acquired structures. This plan must be shared with appropriate personnel, so all are aware and can respond accordingly.

Finding: Inadequate and inconsistent information was given to the Safety Officer pertaining to the training exercise that occurred on February 8.

Discussion: A live fire training evolution occurred at the Claremont Development on Sinclair Lane on February 8, 2007. Lieutenant Michael Savino from the Safety Office was present prior to the start of training, but was called from the scene to respond on a working incident elsewhere in the City. Prior to his leaving, however, he addressed several safety concerns with Chief Hyde, which were corrected.

A video of the training exercise was obtained from BCFD. The video camera apparently belonged to one of the recruits and permission was obtained from the Training Academy staff to film the exercise. The video, among other things, shows a number of personnel on the roof of the structure without proper protective equipment in place. The content of this training exercise will be discussed later in this report.

Two injuries occurred on the incident. Lieutenant Sam Darby, an adjunct instructor for the day, suffered burns to his right hand while cutting a hole in the roof. The second injury was a burn to the face of FPA Daniel Nott. Both Darby and Nott were transported to the John Hopkins Bayview Medical Center for treatment of their injuries and were released the same day.

Once the injuries occurred, Battalion Chief William Jones instructed Lieutenant Savino to respond to the hospital to obtain statements from the injured personnel. Lieutenant Darby advised Lieutenant Savino that his gloves were wet from an earlier exercise and he suffered steam burns to his hand while trying to cut a hole in the roof. FPA Nott did not have his face piece in place while operating on the roof. These statements were included in a memo that was sent to Chief Goodwin by Lieutenant Savino on February 15, 2007 (Appendix P).

Chief Jones responded to the training site and received a briefing from Chief Hyde. Hyde advised him that personnel were operating on the roof when a shift in wind direction and a change in fire conditions caused the two individuals to be burned. Chief Jones noticed that the roof had been burned off of the structure, but assumed it had occurred over a series of fires, when in fact, it occurred during one evolution. Jones stated that he asked Hyde if he had permission to burn off site, and Hyde replied that he did have permission.

Chief Jones told the investigative team that he became upset when it was later determined that the volume of fire was larger than he was initially led to believe and the fact that Darby was supposedly not wearing gloves when his injury occurred. The video from the training exercise revealed that one individual was not wearing gloves, but the investigative team could not determine the identity of that individual. Jones felt that he had been lied to about the incident.



Unidentified adjunct instructor working on the roof without gloves or SCBA in-place.

Deputy Chief Theodore Saunders, who was the Acting Chief of the Department on February 8 and 9, told the investigative team that he spoke with Chief Hyde about the injuries, which were described as minor. Hyde told Saunders that Darby had steam burns on his hand and Nott had a “pinpoint” size burn on his face.

A page was sent from CAD to the multi-alarm pager group on February 8, at 4:22 p.m (Appendix Q). The page stated “FDP burn injury at live burn training/3927 Sinclair La/Medic 16 en route to scene/minor burns to face. PED/FCB From: AD07”.

Recommendation: Personnel should be required to accurately report all injuries. Any inaccurate, false, or incomplete statements regarding the manner in which on-the-job injuries occur, should be thoroughly reviewed, investigated, and referred for appropriate administrative action.

Finding: BCFD does not use pass/fail criteria for their physical agility tests.

Discussion: BCFD has a seven-station physical agility test. The first station is simply where the candidate checks in and their records are reviewed by human resources. The second station consists of a physical assessment by Quality Physical Therapy.

Once the check in and physical assessment have been completed, the candidate moves to the remaining five stations that test various physical capabilities. The five stations consist of a hose drag, equipment carry, ladder climb, tower walk, and dummy drag. Each station evaluates the candidate on his or her ability to perform various job functions. All five stations have a time limit in which failure to complete the station within the time requirement results in failure of that station.

It became apparent to the investigative team that the pass/fail times may not have been absolute and may not have been followed at all. The investigative team then sought to determine the parameters of the physical agility test by speaking with Arnold Scher, Director of Human Resources and Recruitment for BCFD. He confirmed that there is no absolute pass/fail time for any component of the physical agility test, as the test BCFD uses is not a validated test. Mr. Scher advised that the Department is working with a company called Human Performance Systems in an attempt to develop an entry level test that could be validated and given to prospective employees.

The investigative team later met with Dr. James Levy, the Medical Director for BCFD. Dr. Levy oversees the medical evaluations for candidates and members of the Department. The medical examination performed adheres to the guidance offered by NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*. He stated that variances are sometimes given when flexibility is allowed by the standard.

It should be noted that a physical examination by a physician does not necessarily determine whether or not a candidate possesses the physical abilities to perform the job functions of a firefighter. The examination, for the most part, is a process to identify serious medical conditions that may preclude an individual from becoming a firefighter. Dr. Levy stated that he was aware that BCFD does not use a validated physical agility test, but wishes they would do so, as he has had concerns in the past about the physical condition of some of the candidates.

Recommendation: BCFD should adopt a validated physical agility test, with pass/fail criteria. Individuals who are not successful should not be considered for employment.

Finding: Racheal Wilson did not meet the specified times for the physical agility test and may not have been physically capable of performing the job functions of a firefighter.

Discussion: The discussion that follows is extremely delicate and was difficult for the investigative team to express in words. The discussion involves the physical make-up of Racheal Wilson, her entry into BCFD, and her alleged difficulties throughout the Training Academy. It should be noted in advance that this discussion does not change the facts or sequence of events that occurred on February 9, 2007.

According to the information obtained from BCFD, Racheal Wilson did not successfully complete the physical agility test, failing the tower walk by ten seconds. She took the same test seven months earlier and completed four of the five stations faster than she did in her later attempt. Based on comparison of the two tests, one could surmise her physical condition

declined from the time she first took the test to her second attempt. Although she did not successfully complete the test, she was allowed to continue in the hiring process.

Racheal's physical stature may have presented some challenges to her becoming a firefighter. This is not meant to imply that she was not physically capable of performing the job, but numerous people, both instructors and students, commented on her inability or difficulty in performing certain tasks.

For example, Firefighter Keith Farrar, an instructor at the Academy, stated that every time he observed her open the nozzle of a hose line, the force of water flowing through the nozzle either caused her to fall, or nearly fall. The same situation occurred on February 9, when Ryan Wenger instructed Wilson to open the nozzle to knock down the fire on the second floor. Upon opening the nozzle, both Wenger and Stephanie Cisneros reported that Wilson fell. Wenger had to take the nozzle from Wilson and knock down the fire so they could proceed to the third floor. This is an example of where Wilson's inability to perform a fairly simple job function could have had a negative effect on her and her crew and should have been previously documented.

Although not currently a code violation, the level of the window sill through which Wenger, Cisneros, Wilson, and Tina Strawsburg exited was unusually high, measuring 41 inches from the floor. Given Wilson's height of 64 inches, this would have placed the level of the sill at approximately the middle of her torso. One of the members of the investigative team is five feet, six inches tall. He is shown in the photo below at the window where Wilson was rescued. The photo is an approximation as to the height of window sill in relation to Wilson. Wenger stated in his interview with BCFD investigators that he had to pull himself up a bit to get out of the window. One of the members of the investigative team who interviewed him during the NIOSH interviews stated that he appeared to be at least six feet tall.



Paramedic Cisneros and FPA Strawsburg were both similar in height to Wilson, as Cisneros is five feet, three inches tall, and Strawsburg is five feet, four inches, the same as Wilson. Their

weights, however, differ from Wilson, as they are approximately 36 to 57 pounds lighter. This is not meant to imply that Wilson's weight was a factor, but Cisneros and Strawsburg were removed through the window with minimal assistance, whereas it took at least four firefighters to rescue Wilson.

Although Cisneros was able to be pulled from the structure solely with the assistance from EVD Wenger, Strawsburg was removed from the building in a manner similar to Wilson. The only difference was there were additional personnel inside, who were able to lift her legs enough so she could be pulled out of the building. With Racheal, there was only one or two personnel assisting from the inside and they did not reach her until she was unconscious.

Recommendation: Documentation of performance should be recorded thoroughly for all recruits while assigned to the Training Academy. An individual with repeated difficulties in essential job related tasks should be remediated and/or considered for dismissal from the Training Academy.

Finding: Lack of documentation in student training files.

Discussion: It was mentioned by several instructors that Racheal Wilson had difficulty with a number of job related skills. It has already been mentioned that she had difficulty with operating the nozzle of a hose line. Firefighter Farrar told the investigative team that Wilson had a propensity for removing her face piece during training evolutions. He stated that he observed her remove her face piece during training in the maze and in the burn simulator, with both incidents occurring in a controlled environment at the Training Academy. He reported these incidents to Lieutenant Crest and assumed they were documented.

A review of Racheal Wilson's training file was conducted by the investigative team at the Training Academy on April 4. The only documentation present in her file was her signed Firefighter Paramedic Apprentice Agreement. Division Chief Joseph Brocato, who was assigned to the Training Academy on February 26, advised that was the only documentation they could locate.

A review of Wilson's personnel file was conducted on May 9 by Chris Shimer in the office of Arnold Scher. It revealed a fair amount of information that may have, at one time, been included in her training file. This information appeared to have been moved to her personnel file. In any event, the file was devoid of any documents that would illustrate the deficiencies that were mentioned.

A subsequent visit to the Training Academy was made on May 10. Since the previous visit, Chief Brocato was able to locate additional information pertaining to Racheal Wilson, including record of a successful fit test for breathing apparatus, her answer sheet for the Firefighter I final, which showed she successfully completed the course on February 7, and a list of her quiz and exam results, which showed she was performing adequately in the academic portion of the Academy. Although additional documentation was located, it still did not seem to be sufficient, given her time in the Training Academy.

A request was made to review the files of several students, which were chosen at random. Three student files were reviewed. One student had four Student Counseling Reports in her file, but the earliest was March 13. None of the records reviewed had any counseling forms in their file dated prior to February 9. Based on their observations, the investigative team came to the conclusion that counseling forms may not have been used prior to the training exercise on February 9.

Recommendation: Provide appropriate documentation in each student's training file. This documentation would include, but not be limited to, deficiencies, proficiencies, injury reports, and other information as appropriate.

Finding: Documentation, in general, at the Training Academy was inadequate.

Discussion: It has been mentioned during discussion of NFPA 1403 that the required documentation was not completed for the training exercise on February 9. A request by the investigative team for additional documentation surrounding the training exercise turned up only injury reports for the two individuals (Wenger and Cisneros) who were injured. In addition, the only documentation available for the training exercise on February 8 were injury reports for Lieutenant Darby and FPA Nott. A detailed search by BCFD could not locate any documentation surrounding the training exercises that were done with the other half of Class 19 in December on Washington Street and South Calverton Road.

There was no documentation available that would detail the day-to-day activities of the Training Academy. The only documentation produced was the General Schedule that showed what each half of the class would be doing each day until graduation on April 20. This would be fine if the schedule proceeded as planned. However, experience has shown that certain situations, such as weather, instructor availability, and unforeseen circumstances necessitate the need to alter the schedule.

When Chief Brocato took over as the commanding officer of the Training Academy, his staff attempted to assess where the class was in its training. He reported that he found it extremely difficult to determine when the class completed certain tests, quizzes, and various portions of programs. He had the secretary, who, herself was also recently assigned to the Academy, review the records and develop a spreadsheet that would illustrate when each member of Class 19 completed a specific program. The spreadsheet that was presented to the investigative team initially showed the class completed Firefighter I on February 12, which would have indicated they were not qualified to participate in a live fire training evolution in an acquired structure. Further investigation revealed they actually took the test on February 7. Adequate documentation would have avoided this discrepancy.

Recommendation: The Training Academy should maintain a logbook that would detail the day-to-day activities of a recruit class. The logbook would be a detailed description of all of the activities that occurred within a given day. The Academy should also consider a method of documenting all pertinent information and a specific location in which the file is stored.

Finding: The training exercise at Sinclair Lane on February 8 was not conducted with the safety of the recruits in mind and in accordance with NFPA standards.

Discussion: A video of the training exercise was taken by one of the recruits, presumably with the permission of the Training Academy staff. A copy of the video was acquired by BCFD and made available to the investigative team.

The video shows, among other things, a number of safety issues that had the investigative team wondering what the intended purpose of the exercise might have been. Recruits were observed entering and exiting the structure without being accompanied by an instructor. There is a heavy volume of fire on the second floor, which has extended into the area beneath the roof. Despite the volume of fire, recruits can be seen operating on the second floor. During one sequence, two recruits are exiting the building, one with what appears to be debris burning on the neck and back of the second recruit. It is quickly removed by the other recruit, but they both then re-enter the structure. During this sequence of events, they do not appear to be accompanied by an instructor.

The fire, once it entered the area above the second floor, appeared to spread through the common area to several other buildings, as smoke was evident two buildings away from the one involved. It is obvious to an observer of this video that the fire is beyond the capabilities of a recruit class, especially one with minimal training. An unidentified voice on the video appears to have stated “give it up, it’s what I want to do”.

Numerous personnel can be seen working on the roof of the structure. Initially, it appears as though the recruits, identifiable by the yellow gear, are using the breathing apparatus appropriately, as their face pieces are in place. However, the instructors with them have breathing apparatus on their backs, but their face pieces are not in place, as they can be seen dangling from their neck strap. This was a situation that dictated the need for breathing apparatus to be used. The recruits are also seen, following either the example they observed or the commands of the instructors, removing their face pieces as well. In a training environment, instructors must set the example and adhere to accepted practices, policies and procedures at all times. This was not done in this situation.

In addition to the breathing apparatus issue, one individual can also be seen working without gloves. As has been discussed earlier in this report, a Lieutenant suffered burns to one of his hands, stating they were steam burns from wet gloves. This issue has been addressed elsewhere in the report, but the practice again sets a bad example to the recruits involved.

It appears as though the instructors on the roof performed most of the tasks that needed to be accomplished, while the recruits were standing nearby. Watching someone perform a task does not insure the individual will be able to perform the task when needed. The instructors were cutting holes in the roof, using axes and saws, but the recruits did not appear to be involved.

Recommendation: Live fire training in acquired structures must be accomplished in accordance with accepted standards. Safety must be of the utmost concern and departmental policies and procedures must be followed.

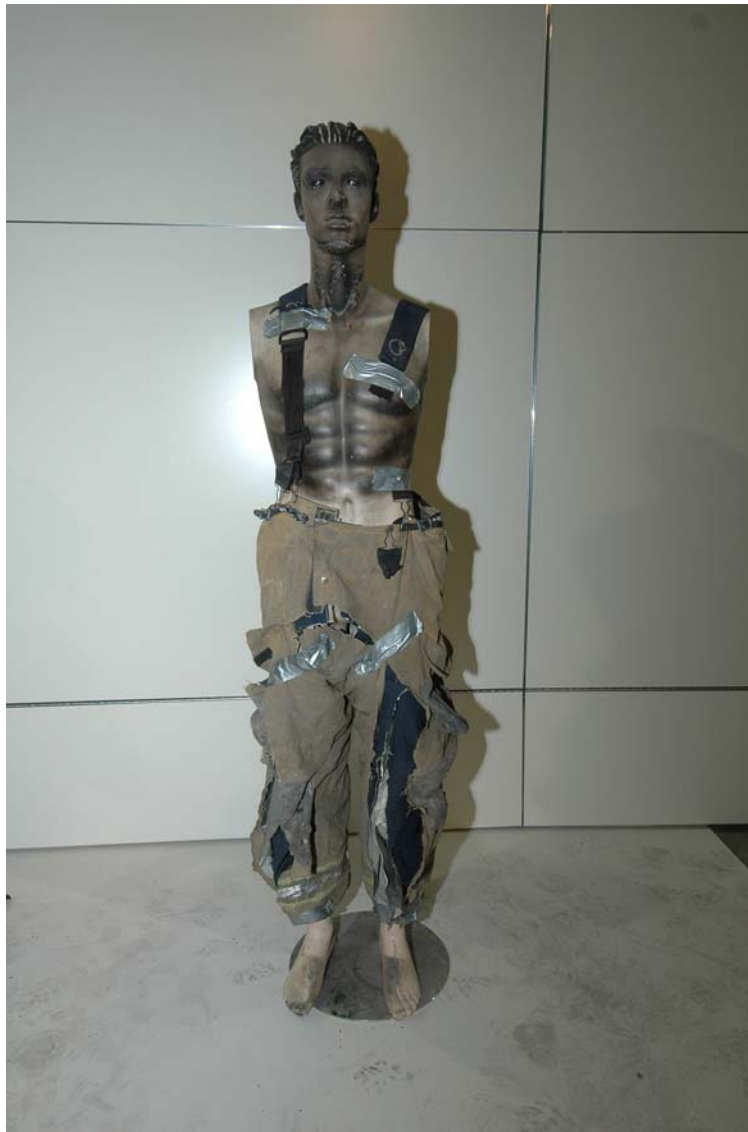
Finding: Racheal Wilson's turnout gear was not adequate for interior firefighting.

Discussion: Wilson's gear was sent to Lion Apparel in Dayton, Ohio for inspection. A report was submitted to BCFD by Karen Lohtonen, the individual who performed the inspection at Lion Apparel (Appendix F). Of particular concern is the fact that the report mentions the coat and pants being a black PBI outer shell. Racheal Wilson's gear was yellow or brown. This was brought to the attention of Deputy Chief Saunders, who advised that he would contact Lion Apparel and inform them of the discrepancy. An updated report, if one exists, was not provided to the investigative team.

The coat was noted to be in serviceable condition, but nearing the end of its useful life. Interesting was the fact that the report stated the coat suffered little thermal exposure. Given the severity of Racheal Wilson's burns on her torso and arms, one would have thought that the coat would have shown signs of exposure to heat.



The pants, which were manufactured in 1997, had significant problems. Many areas were noted to have been patched or repaired. The leather on the right knee was worn through in some places and there was a “medium size hole” at the base of the fly. The report stated that the crotch seemed to have no integrity, and the thermal protection in the crotch and upper thigh was diminished, due to abrasion and wear. The pants were said to be beyond their useful life and the recommendation was that they be retired. This may have accounted for the serious burns Wilson suffered to her lower extremities.



In addition, there were no records of cleaning and maintenance associated with the coat and pants. This is discussed in detail in the Investigation section of this report.

Recommendation: Gear should be inspected regularly and taken out of service immediately if in need of repair. Gear that is extremely worn and beyond its useful life should be removed from service.

Finding: There was no clear delineation pertaining to the evacuation of the recruits and the subsequent entering of the building by experienced personnel. As a result, there were approximately 28 personnel in the building at a certain point during the emergency.

Discussion: Truck 10, Engine 14, and Battalion Chief 3 all were standing by on location, primarily to observe the training activity. They remained in service for emergency incidents. When the emergency occurred at the training site, Battalion Chief Hoffman placed them out of service on the incident and directed his personnel to assist with the rescue effort.

It was mentioned by several during the BCFD interviews that the intent was to replace the recruits in the building with experienced personnel. This decision was correct, as it would be inadvisable to use recruits in a situation such as that encountered. The recruits, however, did not receive orders to exit the building, and as a result, remained inside.

The experienced personnel who entered the building commented on the number of recruits that were on the stairs, making it difficult to pass. Lieutenant Krohn stated that there were 15 people on the stairs when he entered the structure. Lieutenant Crest estimated there could have been 20 to 25 personnel in the building at any given point in time. FPA Strawsburg, when advised by Lieutenant Jones to retreat down the stairs and exit the structure, was unable to do so, due to the number of people. She was told by Lieutenant Broyles that she could not pass, so she returned back to the third floor window, where she was assisted out of the building. Other experienced personnel who entered the structure stated that they ordered recruits out of the building as they encountered them, which eventually alleviated the problem of too many people in the building.

Recommendation: As was addressed in the NFPA 1403 section, develop an evacuation plan and review it with students prior to the start of the exercise.

Commentary

The previous section of this report discussed, in detail, each of the issues the investigative team discovered during the five months it was assigned to the investigation. It has been shown that many of the issues were very serious and contributed heavily to the events that occurred on February 9. Some of the issues were relatively minor, but warranted discussion in the report. Others that were mentioned may not have had an effect one way or the other on the final outcome of this tragic incident. Nonetheless, they bear mentioning.

This section will describe what the investigative team perceived as the major issues overall. The issues will be discussed in detail and where practical, potential resolutions are provided. It should be noted that the discussion centers primarily around the events of February 9, but also includes the training exercise on February 8, along with general training issues within BCFD. General issues pertaining to BCFD as a department will not be discussed, as they were not within the scope of this investigation.

Training Exercise on February 8

The training exercise that occurred on February 8 was not the focus of this investigation, but it quickly became apparent that it was part of the systemic problem within the Training Academy of BCFD. The investigative team was aware of the training exercise prior to the start of its investigation, as it had been reported by the media on or about February 16. The knowledge of this exercise added to the complexity of the investigation and broadened its scope beyond the events that occurred on February 9 by providing an opportunity for comparative analysis of the live fire exercise.

On March 8, Division Chief Robert Doedderlein, from the Fire Marshal's Office, delivered a DVD to Chris Shimer in his temporary office at City Hall. The disc contained a video recorded by one of the FPAs at the training exercise on February 8 at Sinclair Lane. After reviewing this video, the investigative team came to the conclusion that there were significant problems with this training exercise as well and the issues noted appeared systemic and should become part of the investigation. As a result, several interviews were conducted and information pertaining to this exercise was gathered.

The camera that recorded this exercise belonged to FPA Shonnie Thorpe. She apparently had permission from the Training Academy personnel present to record the training, as a couple of instructors were relatively close to the camera at various times while it was recording. Thorpe did not record the events herself, as an unidentified male voice can be heard on the recording and she can be seen several times during the video.

The video shows the fire as it progressed. It is fairly obvious from the video that the required compliance with NFPA 1403 did not occur at this training exercise either. Although the number of fires that were present in the building cannot be determined, it appears as though there was more than one. The intensity of the fire was of concern as well, as the second floor of the structure was well involved (See Photo B). Fire also appeared to extend beyond the building in which the recruits were training, as smoke was visible in at least two of the adjoining buildings (See Photo A). A voice on the video can be heard saying "Give it up, it's what I want to do". At one point, two recruits were observed exiting the structure. Fire could be seen burning on the back of the second recruit's helmet and/or neck area (See Photo B). The first recruit brushed the fire away and they re-entered the building a short time later. At no time was an instructor seen with these two recruits. This fire was far too intense for this group of FPAs, given their limited training prior to February 8.



Photo (A) showing smoke spread to multiple occupancies.



Photo (B) showing intensity of fire. Fire evident on the neck of recruit at doorway.

The actions of the crews, specifically those acting as instructors, were disconcerting to the investigative team. Instructors, identified by their black turn out gear, could be observed working on the roof with recruits without the proper protective equipment in place. The instructors were working with the recruits on the roof while a fire raged directly below them. The instructors were equipped with breathing apparatus, but they did not have their face pieces in place. The recruits initially had their face pieces in place in accordance with what they were taught. However, as time progressed, each recruit eventually removed his/her face piece, reportedly, because they were told they did not need them by the instructors on the roof. One recruit subsequently suffered a burn to his face and required transport to a hospital.



An instructor on roof without breathing apparatus.



An instructor on roof without breathing apparatus; recruits on roof with breathing apparatus.



Recruits on roof without breathing apparatus.

Firefighter Keith Farrar, an instructor assigned to the Training Academy, stated during an interview with the investigative team that he asked those on the roof why they removed their face pieces. Their response was they were told to do so by the instructors who accompanied them. Farrar reminded them that they were instructed differently in the Training Academy and should practice what they were taught, which was that the face piece should remain in place while working in that type of environment.

Lieutenant Sam Darby was working as an adjunct instructor with FPAs on the roof. He suffered burns to one of his hands, reportedly steam burns caused by using wet gloves. Battalion Chief William Jones told the investigative team that it was later determined that Darby was not wearing gloves when he was burned. Although the investigative team could not identify the individual from the video, there was an instructor on the roof, without gloves, who was using a saw to cut a hole in the roof. A photo of this individual was previously shown. It is immaterial as to whether or not the individual on the video was Darby. The fact remains that an instructor, who is supposed to teach and mentor new members of the fire service, was demonstrating an unsafe practice.

It is common knowledge throughout the fire service that during one's career, certain practices and methods are developed or learned through experience that may not be formally endorsed during a Training Academy program. Although it is not condoned, it is understood that fire department practices are dynamic and individuals sometimes will not or cannot conform to a policy, procedure, or standard one-hundred percent of the time throughout their career.

In a training setting however, instructors must, at all times, conform to all policies, procedures and standards. Recruits in a training setting usually respect their instructors and value their knowledge and experience. They trust their instructors to the point that they would do almost anything an instructor told them to do, believing that it is safe and the right thing to do. Teaching bad habits, specifically those pertaining to safety, is unacceptable and should not be tolerated in a training environment. Instructors who cannot conform to the standards and accepted practices, especially safety protocols, should not be used to teach recruits.

Another issue that arose during the investigation of this fire was the lack of documentation. The investigative team requested documentation pertaining to the event, which should have included that which is required by NFPA 1403. The only documentation that was produced, despite several efforts by BCFD, were the injury reports for Lieutenant Darby and FPA Daniel Nott, and a memo from Lieutenant Michael Savino to Chief William Goodwin, detailing both injuries.

The structure that was used was obtained from a developer less than 40 hours before the planned training. The investigative team could not determine if any documentation existed regarding the acquired structure since none was provided to the team. If the required permits, proof of ownership and insurance, were not completed, utilization of the site would not be compliant with the standard. Any documentation should have been reviewed with the City's legal department prior to the training. If possession of the building was with a developer and not the City of Baltimore, serious liability issues could arise without the proper "permits and documentation" being completed.

As mentioned in the previous paragraph, Division Chief Hyde held a training exercise at the Sinclair Lane location within 40 hours after becoming aware of the site. If done in accordance with NFPA 1403, it is not possible to plan, prepare, review and obtain the required permits in that amount of time. During a discussion with an individual from a nearby jurisdiction who plans live fire training evolutions in acquired structures for his department, the investigative team found that it takes approximately 60 days to complete the documentation and prepare the site for the training evolution. This person described the process as labor-intensive and extremely time-consuming. He added that his department declines the majority of requests to burn structures, as many are unsuitable to burn or their Training Academy cannot comply with the time requirements of the property owner.

Based on the information available, it is the opinion of the investigative team that the training exercise on February 8 was hastily assembled, with little regard as to what was required. The fire itself was much too large for the class to handle, given its limited exposure to fire prior to February 8. Safety did not appear to be a concern at the exercise, as multiple fires were apparent and instructors demonstrated unsafe practices.

Another issue surrounding this exercise is the conflicting statements given to those who investigated the injuries. As has been mentioned in this report, Lieutenant Savino was present at the training site, then responded to an emergency incident elsewhere in the City. Once the injuries occurred, he was instructed by Battalion Chief Jones to go to the hospital to interview those injured. Jones, meanwhile, proceeded to the scene.

Chief Jones stated that when he asked Chief Hyde what had happened, Hyde replied that the wind had shifted, causing steam burns to Darby's hand and a small burn to Nott's face. Jones later found out that Darby was not wearing gloves and the injuries did not occur as described. Deputy Chief Saunders advised the investigative team during an interview that Hyde described Nott's burn as a "pinpoint" sized burn. Although his burns were not serious, Nott described the burn on his face as being somewhat larger than a pinpoint.

All injuries to firefighters that occur during training exercises, should be accurately reported, investigated, and documented. If a breach of safety practices contributed to the injury, appropriate action should be considered by the BCFD. Given the number of firefighters who are killed and/or injured each year due to lax safety practices, there is no excuse for not emphasizing proper safety in the training environment.

Training Exercise on February 9

The BCFD acknowledged long before the start of the independent investigation that the training exercise was tainted with problems. Their willingness to admit to and confront the issues made it somewhat easier for the investigative team, as a great deal of information was readily available at the start of the investigation. The team made numerous requests throughout the investigation, all of which were fulfilled when possible.

Most of the issues surrounding the training exercise have already been discussed in various sections of the report. Rather than repeating each of the issues in detail, this discussion will focus on the major issues that were discovered by the investigative team.

Documentation Issues

Like the exercise on February 8, very little of the required documentation was available to the investigative team, except for the information that was provided to Battalion Chief Bull by Division Chief Hyde, on February 12, which was three days after the incident.

During review of the documentation, Chief Hyde listed the individual item numbers for NFPA 1403 and the word "done" after many of the items. The word "done" would likely be interpreted to indicate compliance with the standard. That obviously was not the case, as it has been demonstrated that Lieutenant Crest, as the Incident Commander and Division Chief Hyde, as the Safety Officer were not compliant with the standard. The documentation presented was inadequate, inaccurate, and inconsistent with the information otherwise received by the team.

As was the case on February 8, there was no documentation available that showed that the required permits to burn the structure were obtained and completed. A plan was not prepared and reviewed. As a result, the possibility exists that some of the BCFD staff were not fully apprised of the live burn training scenario.

The only documentation produced that indicated live burn evolutions were going to take place were the series of emails that occurred back and forth between BCFD and DHCD. Other emails between various members of BCFD were written in an attempt to keep certain officials informed, but they only seemed to complicate the issue. A definitive plan that would be reviewed by certain individuals would have alleviated any confusion.

An example of the confusion occurred when Division Chief Hyde requested two buildings for live fire training from Deputy Chief Theodore Saunders (Appendix H). Chief Saunders responded by asking if there were any buildings left from those he previously acquired from DHCD, which included 145 South Calverton Road. The structure on South Calverton Road was never approved to be burned. Based on Saunders' response to the request, Hyde may have mistakenly been under the impression that the South Calverton Road structures were ok to burn. Chief Hyde instead responded by stating that they had used the good buildings, which would have included those on South Calverton Road. It is unknown as to how Chief Hyde came to the decision to use 145 South Calverton Road on February 9.

Another source of confusion concerning the location was the communication between Chief Hyde and Battalion Chief William Jones from the Safety and Health Office. Chief Hyde sent an email to Chief Jones (Attachment J), stating that they would be conducting live fire training on Sinclair Lane on February 8, if he wanted to send someone from his office. He also stated they had plans for Friday (February 9), but did not specify the location.

Chief Jones sent Lieutenant Savino to the training exercise on February 8. He did not send someone on February 9, as he assumed the training was at the same location. Based on the emails, it would have been virtually impossible for Chief Jones to know where the training was taking place on February 9. A definitive plan, as required by the standard, would have alleviated the communications difficulties between Chiefs Saunders, Hyde, and Jones.

Deputy Chief Gregory Ward also communicated with Chief Hyde, but he became involved only when there was a request for resources from the field. He was aware of the location of the training exercises on February 8 and 9, but only because of Hyde's request for an ambulance to stand by both days. Chief Ward, as the Deputy in charge of Operations, allocated an ambulance as requested both days. Since the Training Academy is not under his command, he was unaware of the specific activities or how they were to be conducted.

William Goodwin, Chief of the Fire Department, was interviewed by the investigative team. He was aware that the Training Academy had the ability to participate in live fire training evolutions in acquired structures, but had not seen a plan to do so. During a staff meeting prior to February 9, Hyde provided a presentation on various components of the Training Academy. The presentation apparently included a section on live burns in acquired structures, but due to time constraints, Hyde did not have the opportunity to present that section. Therefore, Chief Goodwin was unaware that live burns were going to take place on February 8 and 9.

A definitive, documented plan would have alleviated much of the confusion and would have made sure those in certain positions were aware of the training exercise. If BCFD decides to reinstitute live fire training in acquired structures, they should develop procedures that

incorporate the documentation that is required by NFPA 1403. The documentation should be reviewed by legal counsel prior to the event. The documentation also should be reviewed by designated members of BCFD, including, but not limited to the Chief Safety Officer, Chief of the Training Academy, Deputy Chief of Administration and the Chief of the Fire Department. A signature page should be included, with signatures from these individuals required prior to the training taking place.

This would ensure appropriate individuals are aware of all the essential components of the training exercise and approve of the proposed plan. Despite all of the safeguards a plan could provide, it still would not alleviate the issue of circumventing the standard once on the scene. For that reason, personnel from the Safety and Health Office should be on location of all live fire training in acquired structures and remain throughout the exercise until all units and personnel are ready to leave the scene. Those individuals should have the authority, as the Safety Officers, to stop any unsafe acts and ensure a culture of safety is being practiced in accordance with the standard.

Instructors

The instructors used for the training exercise on February 9, specifically the adjunct instructors, had no prior documented experience as fire training instructors. As a result, their knowledge and application of NFPA 1403 was limited, as was their knowledge of Training Academy policies and practices. The adjunct instructors relied upon the direction of the Training Academy staff. Because of their lack of experience, they provided little guidance to the recruits assigned to them, and in several cases, did not adequately monitor and supervise them during their activities. As a result, a number of recruits were left to make decisions on their own and provide for their own safety. In addition, several instructors left their crews altogether, which could have had catastrophic consequences.

EVD Ryan Wenger, the leader of Engine 1, stated that he knew the two females (Cisneros and Wilson) assigned to him, but he did not know the names of the males (Perez and Lichtenberg). The investigative team was not made aware of any type of accountability system used by the Training Academy, so it is difficult to imagine how accountability can be managed if a leader does not know the individuals assigned to him. To remedy this situation, consideration should be given to applying student's names to their Personal Protective Equipment (PPE).

During their ascent to the third floor, FPAs Perez and Lichtenberg became separated from the crew, due to the fact that they were pulling hose for FPA Wilson and Paramedic Cisneros. They remained on the stairs leading from the second to the third floor, which exposed them to the danger of the multiple fires that continued to burn on the second floor. Despite the fact that they were exposed to extreme heat and fire conditions, Perez and Lichtenberg did not initially think they were being exposed to danger, assuming their instructor would be cognizant of their conditions and not leave them in vulnerable circumstances.

However, during his BCFD interview, Perez stated that he "felt pretty much abandoned" and when he looked around, "It was just me and Ben (Lichtenberg)". When he proceeded to the third floor to determine what he should do, he could not find his instructor, as Wenger had

already left the building. Perez commented several times during his interview that Wenger did not provide any direction once inside the building. Due to the fact that they were students and had no experience with fire in an actual building, they trusted their instructor and assumed everything was fine. This confirms the belief by the investigative team that the recruits trusted that their instructors would provide for their safety.

It is difficult to criticize EVD Wenger for his actions, but the fact remains that he abandoned his crew. He was the first person to exit the structure when Paramedic Cisneros told him that she needed to get out of the building. He was able to pull her through the window to safety, but then found himself in a position where he could not effectively assist or rescue Racheal Wilson. Combine this with the fact that the other FPAs (Perez and Lichtenberg) were assigned to him and left on their own, Wenger's actions could be considered inappropriate.

It was mentioned by one student during their BCFD interview that Wenger did not have a Nomex hood in place and was not wearing a PASS device. Wenger admitted to not wearing a PASS device, but stated that he wore a hood. The investigative team could not determine if Wenger wore his hood, but did note that Wenger suffered injuries (burns to his ears) that would suggest he was not wearing his hood inside the building. However, it is possible that Wenger removed his hood once outside the building and suffered the injuries during the rescue attempt.

EVD Wenger, with his lack of instructional experience, lost sight of the fact that his crew consisted of recruits with limited exposure in an actual fire situation. He mentioned during his BCFD interview that the heat was intense when they reached the third floor and the conditions were untenable. However, instead of assessing the situation and considering withdrawal from the building, it took prompting from Paramedic Stephanie Cisneros to inform Wenger that the conditions were too severe. He should have assessed the capabilities of those assigned to him and realized that as recruits, they were not experienced enough to deal effectively and safely with the confronting conditions.

Captain Louis Lago was another of the adjunct instructors who did not provide much direction or oversight to his crew. As he provided a briefing to the crew as to what they were to do, FPA Padraic Shea reported smoke was already evident at the windows. The crew had questions of Captain Lago, but he stated that there was no time for questions, as the exercise had already started. Although the premature lighting of fires was not his fault, Lago had his crew engage without answering their questions. As a result, the crew started carrying out their assigned tasks, but with unanswered questions remaining. None of his crew members were equipped with PASS devices.

Once the crew was inside the building they had no knowledge as to the whereabouts of their instructor. When asked by BCFD investigators about their instructor, FPA Jason Neisser replied "I have no clue where he was". He stated that he did not see Captain Lago after they entered the building to perform search and rescue. FPA Shea stated when he reached the second floor, he did not hear or see Lago and the last he saw him was at the front door.

FPA Tina Strawsburg, during her BCFD interview and subsequent interview with the investigative team mentioned the organization of the training exercise on February 9 as

compared to February 8. At the training exercise on February 8, her instructor was Lieutenant Daniel Zapolowicz. She told the investigative team that Zapolowicz stayed with the crew and she “did not feel left alone that day”. When asked by BCFD investigators what scared her the most, Strawsburg replied “Not having one of our instructors with us was a big thing, I think, the abandonment feeling”. Lieutenant Zapolowicz retired shortly after February 9 and was not available to speak with the investigative team.

During the training exercise, FPA Strawsburg became separated from the remainder of the crew. She could not find her crew and heard the screaming that occurred during the rescue effort, so she began to look for a way out of the building. She made her way to the third floor, where she was eventually assisted through the same window as Cisneros and Wilson.

In addition to the statements made by three of the crew members, the low air pressure alarm of Paramedic John Stevens, the fourth member of the crew, activated. His fellow crew members stated that it activated several minutes earlier, but no action was taken. FF/PM Tarnisha Lee, who was inside the building, later ordered Stevens out of the building, along with FPAs Shea and Neisser. The whereabouts of Captain Lago during any of these events was unknown, but it does not appear as though he was in close proximity to his crew or providing them with direction and supervision.

EVD Michael Hiebler, the leader of Engine 2 did not maintain the integrity of his crew throughout the incident. Given the situation, however, his actions may have been understandable. Hiebler was also used as an adjunct instructor for the day. His crew was carrying out their assignment, which was to proceed to the second floor and extinguish the fire when he heard a report of a firefighter down. He instructed his crew to remain in place, then he and FPA Wayne Robinson proceeded to the third floor. Hiebler assisted with the rescue while Robinson attempted to extinguish the fire on the third floor. It was only after Hiebler assisted from the inside that Racheal Wilson was removed from the building.

Unfortunately, while Hiebler was away from his other crew members, one of them, possibly FPA Jason Wright’s low air pressure alarm activated. Another member, FPA Jason Stevens was ordered to remove his breathing apparatus while still in the building and gave it to an individual, presumably Lieutenant Brian Krohn from Truck 10.

Once Racheal Wilson was removed from the building, Hiebler and Robinson returned to the rest of the crew. The crew, minus FPA Stevens, left the building together. Hiebler gave his crew specific instructions when he left them, then returned as quickly as he could.

Lieutenant Barry Broyles, a certified instructor assigned to the Training Academy had three FPAs assigned to him as the Rapid Intervention Team. He did not provide any direction to them prior to the start of the incident beyond telling them they would be functioning as the RIT. He did not provide them with any material instruction apparently, believing that they would assemble the necessary equipment on their own initiative.

When requested by Lieutenant Crest to engage, Broyles found that the crew had not assembled any equipment and was not prepared. During his BCFD interview, he remarked that

he was upset that his crew did not adequately prepare for the event. Again, as an instructor assigned to supervise this critical safety component, Broyles should have assured the FPAs acting in this capacity, were properly equipped and staged in position to respond, if needed, in an emergency, which he failed to do.

Once the emergency with Racheal Wilson occurred, Lieutenant Broyles entered the building with the experienced personnel who were pressed into action. He stated that the intent was to replace the recruits inside the building with experienced personnel. The decision, whoever made it, was appropriate, but Broyles left his crew without providing any further direction.

If Lieutenant Broyles had planned to leave his crew, he should have given them specific instructions as to where to assemble. If the intent was to disengage the recruits and replace them with experienced personnel, he should have given them instructions to remain outside of the building. Instead, his crew continued to be involved in the rescue effort, placing a ladder to the rear of the structure, with at least one member of the crew climbing the ladder to the second floor roof and later entering the structure to extinguish fire. Although their actions seem benign, they were functioning without any direction or supervision.

In summary, fire recruits generally respect their instructors for their knowledge and experience. In a training environment, they will follow just about any order they receive from an instructor and trust them with their lives. It is imperative that instructors be accountable for their actions, especially when they affect the safety of those they supervise. They must maintain accountability for those assigned to them at all times and make sure they stay as safe as possible.

Three of the instructors (Wenger, Lago, and Broyles) did not maintain close contact with their personnel, instead leaving them on their own. Although they had minimal training prior to the event, it appears as though the recruits performed admirably under the circumstances, despite the fact that they lacked proper supervision.

If the Baltimore City Fire Department chooses to continue with live fire training in acquired structures, it is the recommendation of the investigative team that they use instructors certified by the Maryland Instructor Certification Review Board. This certification should be mandatory for any individual who is leading crews inside a structure for a live burn evolution.

Students

The training the members of FPA Recruit Class 19 received prior to the live fire evolutions in acquired structures on February 8 and 9 met the minimum requirements as specified in NFPA 1403. The minimum standard was met by most of the recruits when they successfully passed their Firefighter I test on February 7. Those who did not pass were not permitted to participate in the training exercises.

The investigative team found that, although the personnel who participated in the training exercises on February 8 and 9 may have met the minimum requirements, they may not have been prepared to participate in live fire training in an acquired structure. Several students mentioned

that they had limited exposure in live fire situations prior to February 8 and 9. Paramedic Cisneros told investigators that she and FPA Wilson engaged in a friendly argument as to who would operate the nozzle during the fateful exercise, as neither of them had experience in a live fire scenario. Others, such as FPA Strawsburg mentioned limited experience in the Training Academy's burn buildings.

Captain Terry Horrocks told the investigative team of Lieutenant Crest's displeasure in Class 19's overall performance. Horrocks claimed that he asked Chief Hyde not to take the recruits to South Calverton Road on February 9, as they were not ready, but Hyde stated they were going to proceed as planned. Crest himself told the investigative team that he was uncomfortable with the majority of the class. However, these problems were not documented, so there is no clear proof that the perceived deficiencies existed.

It was reported that Racheal Wilson had difficulties wearing breathing apparatus and pulled her face piece off several times during training at the Academy. It was also mentioned by Firefighter Farrar that every time he observed her opening the nozzle of a hose line, the force either knocked her down or nearly knocked her down. Farrar also mentioned that on February 8, Wilson and another FPA tried to raise a ground ladder, but lost control of it, causing it to fall.

This information is not meant to draw attention to the performance challenges of FPA Wilson, as instructors who were interviewed indicated there were others who had problems as well. It is, however an illustration of why skills shortfalls should have been documented and corrected before Wilson and all other students were allowed to participate in a live fire training evolution in an acquired structure.

Major NFPA 1403 Issues

As previously mentioned in the section of the report that specifically addresses NFPA 1403, the investigative team found 50 violations of the standard. All of the violations were discussed in detail throughout that section and recommendations to avoid a recurrence of all were noted. Most violations contributed, in some way, to the events that occurred that day. Others, for example, the documentation issues and required permits did not have an impact on the incident. Not to diminish the importance of any violation, but this section will focus on those issues that were considered critical by the investigative team.

The findings of the investigative team is that those in vital positions on February 9, namely Lieutenant Crest as the Incident Commander and Division Chief Hyde as the Safety Officer did not comply with the safety standards set forth in NFPA 1403 and the death of FPA Wilson ensued.

Although most of the standard is relatively clear, there are some areas that are rather vague and open for interpretation. One such area, for example, is the qualification for instructors. The standard leaves it up to the authority having jurisdiction to determine who is qualified. Those involved at the Training Academy set criteria as to who was qualified, which appears to have been within the standard. This is one example of the situational ambiguity of the standard.

Most of the standard is very clear and is not open for interpretation. One of the many examples pertains to the number of fires that can be set within a structure. The standard clearly states that only one fire at a time is permitted within a structure, while the facts show that numerous fires were set.

As mentioned elsewhere in this report, Chief Hyde presented a package of information to the Fire Marshal's Office on February 12. This package included a list of the items from NFPA 1403 that pertained to the training exercise. For most of those items, he noted "done" as if he had complied with the standard. It was clear, after reviewing all of the information and documents, that Chief Hyde had not complied with the requirements as specified and had, in fact, provided inadequate and inaccurate information, in an apparent attempt to avoid responsibility for the conduct of the live fire training exercise.

The lack of radios for vital personnel was a major contributing factor to this incident. EVDs Ryan Wenger and Michael Hiebler, who led the first two crews into the building, were not equipped with portable radios. Shortly after their entry into the building, Lieutenant Crest tried repeatedly to contact EVD Wenger for an update. Obviously, Wenger could not provide a situation update without a radio. Wenger, although concerned about the conditions he encountered, could not determine what was occurring and had to look out of a window.

Once it was determined that Racheal Wilson was in distress, Wenger had no way of communicating the problem to the Incident Commander, other than to start literally screaming for help.

Another major issue was the lack of a walk through of the building prior to the start of the exercise and lack of specific identification of appropriate exits. The Training Academy staff may have considered those who carried materials for the fire to have had a walk through of the building, although they could not confirm if everyone was involved in the preparation of the building. The investigative team determined that not all of the recruits were involved. Nonetheless, positioning combustible in the building for a fire should not be considered a substitute for a walk through. The standard specifies that all participants in the training evolution be afforded the opportunity to walk through the building. None of the recruits reported receiving a walk through designed to familiarize them with the structure and the appropriate emergency exits required by the standard. The only instructor or officer who stated that a walk through was done was Division Chief Hyde during his BCFD interview. Lieutenant Crest, when questioned by BCFD investigators, admitted that a walk through for the students did not take place.

The purpose of a walk through and identification of exits is for the participants to acquire knowledge of the layout of the building and to be made aware of exits that can be used in the event of an emergency. This probably had no bearing on the outcome for Racheal Wilson, as she was in an area where she probably felt she could be rescued and it is doubtful she would have left the safety of a window with her instructor within arm's reach. However, FPA Tina Strawsburg reported that she became separated from her crew and got to a point where she was looking for a way to get out of the building. Had she been afforded a walk through prior to the incident, she may have been able to determine a route to exit the building on her own instead of relying on an instructor to tell her how to evacuate.

The lack of a water source separate from the fire engine supplying the attack lines did not contribute to the incident, but its omission warrants discussion. The standard is clear in that it specifies separate sources of water for attack lines and backup lines. The intent is if something happens to the primary water supply source or the fire engine supplying the hose lines attacking the fire, another source can be expediently used to protect and rescue personnel still inside the building.

On February 9, one fire engine was supplied by a single fire hydrant. The attack hose lines that were used by Engines 1 and 2 both came from the fire engine that was positioned in front of the building. The backup line, which was eventually assembled by the Rapid Intervention Team, was connected to the same fire engine. Had the fire engine encountered mechanical failure or some other event that resulted in loss of water supply or vehicle power, the delivery of water to the entire operation would have ceased immediately and without warning. This would have placed the lives of everyone inside the structure in jeopardy.

Many issues pertaining to safety were ignored or overlooked. Each was addressed specifically in the section that detailed all of the violations of NFPA 1403. One of the most glaring was the fact that quite a number of personnel, both students and instructors, entered the building without PASS devices in place. This device is very important, as it may be the only way to determine the location of a lost or trapped firefighter. These actions not only violated NFPA 1403, but also violated BCFD's Manual of Procedure 622-3, Personal Alert Safety System by placing those individuals in harm's way.

The First Floor Fire

The fire that occurred on the first floor became a major contributing factor to the incident. A briefing was held by Lieutenant Crest for the instructors, at which time he explained that there would be fires on the second and third floors. There was no mention during the briefing of a fire on the first floor. The deviation from the briefing that was given to instructors played a significant role in the incident.

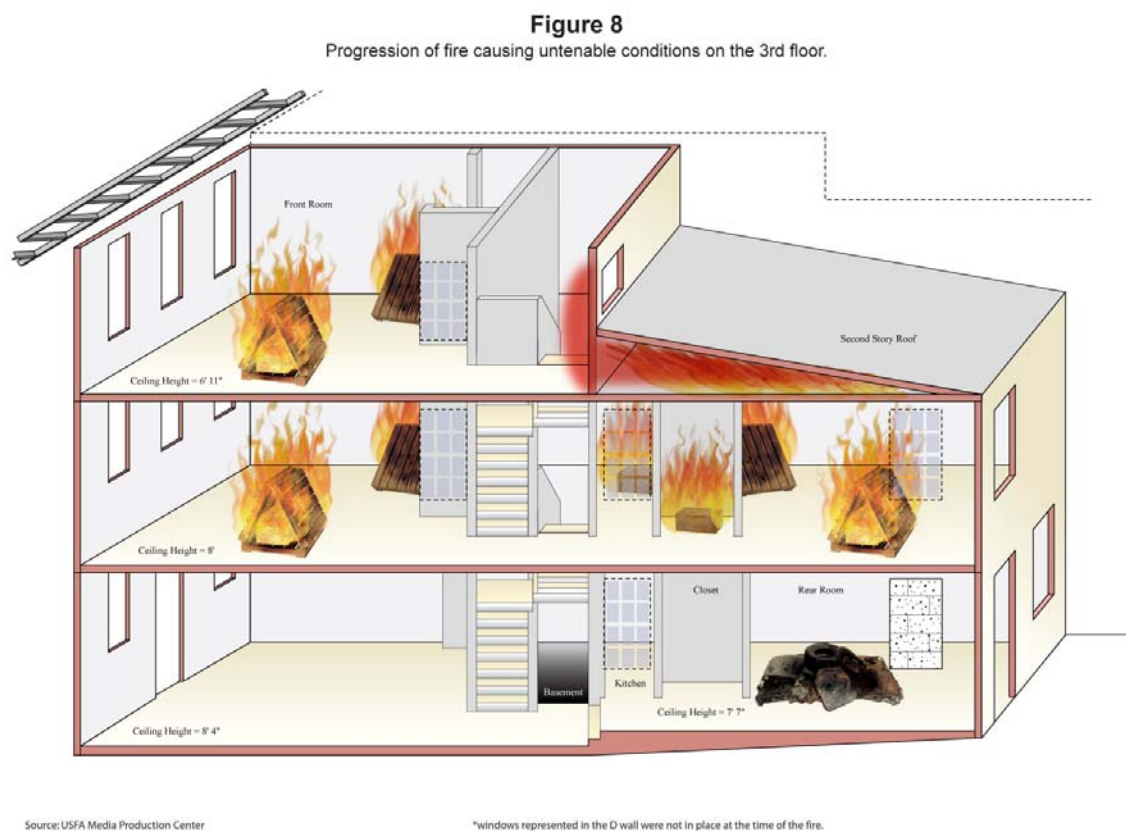
EVD Wenger's instructions were for his crew (Engine 1) to proceed to the third floor. Knowing there would be fire on the second floor, he asked if he was to extinguish any fire he saw, as would be common practice. Lieutenant Crest told Wenger to bypass the fires on the second floor, that a crew (Engine 2) would be entering right behind his crew and would address the second floor fires.

When the crew of Engine 2 entered the rear of the structure, they found the fire on the first floor and had to extinguish it before proceeding any further. To complicate matters, debris that was on fire was piled up on the floor. In order to extinguish the fire, the crew had to place the nozzle of the hose under the debris. In the meantime, Engine 1 encountered heavy fire on the second floor and had to extinguish some of it before proceeding to the third floor, as directed.

Believing that Engine 2 was immediately behind them to take care of the fire on the second floor, the crew of Engine 1 proceeded to the third floor as instructed. Unbeknownst to

them, Engine 2 was delayed by the fire on the first floor. This delay caused the fires on the second floor to burn out of control.

The room to the rear of the second floor was the one in which the ceiling had been pulled during previous training. This left an opening for the fire to travel with little resistance to the area under the roof that covered that portion of the second floor. The fire traversed throughout the area under the roof, causing high heat conditions in the area of the third floor where Wenger, Wilson, and Cisneros were located. In addition, heat and flame from other fires on the second floor proceeded up the stairs to the same area on the third floor. Finally, the fire on the third floor added to the untenable conditions the crew of Engine 1 encountered on the third floor.



As mentioned above, none of the instructors recalled Lieutenant Crest advising them there would be a fire on the first floor. During his BCFD interview, Ryan Wenger stated “Nobody was told about it, nobody expected it”. Michael Hiebler stated during his interview that he recalled someone suggesting a fire on the first floor, but someone else spoke up and thought it was a bad idea. He did not recall who spoke up, but the idea was thought to have been dismissed. Therefore, crews entered the building not expecting a fire on the first floor.

There is evidence that suggests Lieutenant Crest and Division Chief Hyde were aware of the first floor fire. During his BCFD interview, Chief Hyde stated that Lieutenant Crest was responsible for lighting the second and first floors. He added that as the exercise was starting, he

proceeded to the rear of the building and stated “He like threw the flare in the back pile”. It is presumed that he was speaking of Crest throwing a flare in the pile of debris on the first floor. This occurred just prior to the first crew entering the building, as Hyde reported that “the excelsior hadn’t even lit on the first floor”. Excelsior being present is a strong indication that a fire was planned on the first floor and Hyde’s comments suggest Crest lit the fire.

Lieutenant Crest denied all responsibility for the fire on the first floor. The only time he acknowledged the fire during his BCFD interview was when he was asked to count the number of fires in the building. At that time, he stated there was one fire on the first floor, but was not questioned as to who set the fire.

During his interview with the investigative team, he denied knowledge of the fire, stating that the room was not set up for fire. He was not aware of how the fire started or who may have started it. However, during the simulated dispatch of the incident (Appendix C), Crest announces a fire on the first and second floors of 134 South Calverton Road. When questioned by the interview team, he did not recall making that announcement.

EVD Norman Rogers and FF/PM Tarnisha Lee were both “stokers” in the building. They advised that Lieutenant Crest accompanied them and told them where to light fires. Both of them acknowledged lighting fires on the second and third floors, but denied lighting a fire on the first floor.

The investigative team is of the opinion that the fire on the first floor, which was unknown to almost all of the participants, was a major contributing factor to the series of events that occurred. Had the crew of Engine 2 been able to proceed unimpeded to the second floor as planned, the subsequent tragedy may have been averted.

Actions of the Stand-by Crews

The actions of the crews who were standing by at the exercise were criticized shortly after the incident. It has been assumed by both Firefighter Unions that the personnel of Engine 10, Truck 14, and Battalion Chief 3 had been staged to support those involved with the training activity that day. It has also been implied that they should have considered speaking up and expressing their own concerns about the exercise.

The personnel involved only learned of the training the morning of the event and proceeded to the scene to observe without expectation of any direct involvement. Several of those interviewed stated that they had never been involved in a live burn in an acquired structure and were curious as to how they were managed. None of those interviewed indicated that they had any background in training, so they would not likely have been familiar with the requirements of NFPA 1403.

Two of the personnel on the scene, Lieutenant Antoin Redditt and FF/PM Adam Glassman stated that they thought the fire was rather large for the recruits. Redditt

commented that he thought the building appeared to be dangerous; however he had never been involved in a live burn and trusted the judgment of the Training Academy officers and staff.

Once activated, the crews of Engine 14 and Truck 10 entered the structure and performed tasks that assisted with the rescue of Racheal Wilson, the removal of recruits from the building, and ultimately brought the fire under control. With the exception of one individual who entered the building and took a recruit's breathing apparatus, and another who entered without breathing apparatus altogether, their actions appear to have been warranted by the circumstances and contributed to bringing the situation under control.

It should be noted that these crews remained in service until the emergency was declared and they were pressed into action. Had they received an emergency call prior to the start of the training exercise, they would not have been available to assist, nor would their actions have been scrutinized. Since they were generally unfamiliar with NFPA 1403, they could only expect that the Training Academy staff was acting in accordance with accepted standards and policies. It is the opinion of the investigative team that the crews of Engine 14, Truck 10, and Battalion 3 should not be held accountable for the actions or inactions of the Training Academy officers, staff, or the adjunct instructors who were directly responsible for the training exercise.

Overall Culture and Attitude

Each year, approximately 100 firefighters die in the line-of-duty in the United States. Some of these deaths occur during training. There are those who believe a recruit must be exposed to the same conditions they will encounter in the field to be good firefighters. They feel anything less will result in sending someone to the field that is not prepared adequately. Although the training is designed to simulate actual situations, it is done with safety as the paramount concern. Serious injuries and fatalities during training activities should not occur and cannot be tolerated. A training academy has a responsibility to each student who passes through its doors to make sure everyone is provided with adequate training and is able to return home safely at the end of the day.

The overall culture and attitude within the Baltimore City Fire Department's Training Academy and possibly the Department in general may be in need of adjustment. The investigative team discovered examples of why a change in culture and attitude might be necessary.

On February 8, the members of FPA Recruit Class 19 participated in a training exercise on Sinclair Lane. The specifics of the training exercise have been discussed previously in this report, but the video reveals a fire that was well beyond the limitations of the participants. When questioned about the injuries that occurred at this fire, incomplete and inaccurate explanations were provided regarding the cause of the injuries. Since the explanation seemed reasonable at the time, the Safety Officers did not see any reason for concern and did not intervene to review procedures before the training exercise planned for February 9. If all information regarding the injuries were known, a more thorough review of the planned February 9 training evolution might well have occurred.

Division Chief Hyde, during his BCFD interview described the fire on February 9 as “a pretty simple fire”. Lieutenant Broyles commented during his interview that the fire “didn’t appear to be all that much” and “was nowhere near what we’ve done at the Academy”. These observations are contradicted by other firefighters who were also present on February 9 and reflect a grossly inadequate understanding and application of the standard by those involved.

FF/PM Adam Glassman, who was on Truck 10, told BCFD investigators that he thought the fire was too big for a recruit. Lieutenant Antoin Redditt, the officer from Engine 14 said he thought the fire would have been considerable for four engines and two trucks on a regular assignment. It should be noted that these individuals were simply standing by, with no prior knowledge of training requirements or standards, and thought the fire was too much for the recruits participating.

Lieutenant Broyles, in an interview with the Baltimore Sun, said “If you are going to follow 1403 one hundred percent, you will send people out there who are not prepared to fight fire” (Annie Linskey, The Baltimore Sun, June 1, 2007). Training academies throughout the United States train firefighters in accordance with NFPA 1403 and do not report problems with personnel not being properly prepared or adequately skilled.

There appears to be a culture in the Fire Academy that recruits must be exposed to heavy fire conditions in order to be adequately prepared for the field. These practices are unacceptable and may lead to serious injury and, in this case, a tragic death. Firefighting is a dangerous occupation and unforeseen circumstances do occur, sometimes resulting in serious injury and death. However, injury and death should not occur due to the inability to follow accepted standards and safety practices.

Another change in culture that may be in order is the ability to question orders from superior officers. The culture appears to be that in which a subordinate does not question an order from a supervisor. There is no reason to admonish or discipline an individual for questioning an order, provided it is done in a respectful and professional manner.

As an example, when EVD Ryan Wenger received his instructions from Lieutenant Crest, he confirmed that his instructions were to go straight to the third floor. Despite the fact that the orders went against common practice, he told BCFD investigators that he followed the orders he was given. He stated that the orders didn’t make sense to him, but he did as he was told. When he reached the second floor and discovered heavy fire conditions, he wondered whether he should continue to the third floor or try to extinguish some of the fire. He chose to extinguish some of the fire, then proceeded as ordered. He later revisited if he should have disobeyed orders and remained on the second floor until those fires were extinguished and it was safe to proceed.

Chris Shimer, the Lead Investigator of the investigative team, met with the president and secretary of the Baltimore City Firefighters Local 734 and the president of Baltimore Fire Officers Association Local 964 early in the investigation. They were asked what would have happened, had Wenger questioned the orders and refused to carry them out. They advised that

he would have been ordered to carry out the instructions, or he would have been replaced by someone who would follow through. This type of culture does not allow for constructive feedback that should be used as an informal system of checks and balances.

The BCFD should adopt a culture that allows for the questioning of orders when they are in conflict with accepted practices, safe operating procedures, or simply confusion about what is expected. Questioning the orders of a superior officer, provided it is reasonable and done in a respectful manner, can be productive and may assist in avoiding errors, confusion, or committing unsafe acts.

The Training Academy

The Training Academy has had a succession of commanding officers over the past several years. Some of those with whom the investigative team spoke with advised that there have been six Chiefs over the past five years at the Training Academy. The reasons for those leaving were varied, but it does not allow for a culture of safety and continuity to be developed. The changing of leadership may be unavoidable, but it would be desirable to have a Chief remain long enough to develop and foster a standards compliant culture and related policies and practices necessary in today's challenging fire service environment.

During their interviews with the investigative team, Deputy Chief Gregory Ward and Battalion Chief William Jones both mentioned that they thought Chief Hyde may have been under pressure from the field to produce higher quality recruits. Chief Jones added that there had been complaints from field personnel about the quality of recent recruit classes. It should be noted that they did not make these comments as an excuse for what happened, rather they offered their opinion as a possible explanation.

There is a perception that BCFD's Training Academy does not effectively prepare all the recruits who are trained there, meaning, everyone is advanced, regardless of their practical skills capabilities. The investigative team spoke with a number of BCFD personnel who felt that the Training Academy does not hold the recruits to the same standards as those in years past.

The investigative team examined the records of a number of previous recruit classes in an attempt to determine if a change in training standards existed. Based solely on the numbers, it does not appear as though a change has taken place.

From October of 2002 to October of 2004 (Recruit Classes 10-13), 168 recruits entered the Training Academy. Of the 168 recruits who started the Academy, 145 graduated, which equates to a graduation rate of 86.3 percent. Classes 14 through Class 19 (the most recent class), were all hired through BCFD's current hiring process. Recruit Class 14 started in November of 2004 and Recruit Class 19 graduated in May of 2007. During that period of time, 306 personnel entered the Training Academy and 265 graduated for a graduation rate of 86.6 percent, nearly the exact same rate as under the prior hiring process. These figures dispute the notion that training standards have been lowered.

Battalion Commander Ed Cooper was interviewed by the investigative team. Chief Cooper was the commanding officer of the Training Academy from November of 2005 to October of 2006, which was just prior to Division Chief Hyde. The only class that occurred under his command was Recruit Class 18. Chief Cooper advised that he followed the requirements of all training programs and did not pass those who were not successful. The success rate of Class 18 was slightly higher than the overall averages noted above, but was not significantly different.

Division Chief Hyde, in his BCFD interview shortly after the incident on February 9 noted that a group of recruits from Class 19 were held at the Training Academy that morning while the remainder went to South Calverton Road. The reason he stated was that they had to re-test their Firefighter I exam, which is permitted per MFRI standards. He also mentioned that two of the recruits were not successful and were terminated that morning.

Division Chief Joseph Brocato was interviewed on two separate occasions by the investigative team. Chief Brocato became the commanding officer of the Training Academy on February 26. He advised that his staff is following MFRI standards, which for most programs allows one re-test. If an individual's re-test also is unsuccessful, he or she cannot complete the specific program.

Chief Brocato did advise the investigative team of one individual who did not complete one of the programs successfully. This individual was allowed to graduate with Recruit Class 19 and apparently is working in the field. However, that individual must return and complete the program successfully in a future class. It should be noted that there may be others in the same situation, but this was the only one brought to the attention of the investigative team.

The decision to allow an individual to graduate from an academy without successfully completing all of its programs of instruction sets a bad precedent for future classes. In addition, it sets up a scenario in which graduates of the Training Academy are assigned to the field with varying degrees of training and skills proficiencies. There should be consistent and comprehensive training standards for all recruits.

The investigative team recommends a training academy environment where the expectations of each recruit are fully communicated, along with the consequences of not completing any program of instruction successfully. The Training Academy staff should work with each recruit to ensure success, but must recognize there may be individuals who are not suited for the job. This may occur at various portions of the program, but those who are not successful in a specific program of instruction should not be allowed to continue with the current class. If BCFD elects to allow the individual to participate in another recruit class to receive remedial instruction, that would be their prerogative.

All of the members of BCFD should realize that the training a recruit receives in the Training Academy provides only a foundation for what one hopes will be a long and safe career. They should not expect recent graduates from the Training Academy to be able to function as seasoned veterans from the first day they walk into the firehouse. It is up to those with whom they are assigned to mentor them and continue to mold them in hopes they will someday become

what everyone expects them to be. The responsibility of an individual who cannot perform must be shared between the Training Academy and the shift to which they are assigned. In general, it is too easy to blame a Training Academy for the shortcomings of an individual in the field.

Physical Entry Standards for Candidates

The Baltimore City Fire Department does not have a validated physical ability test to assess their prospective candidates. They instead have the candidates participate in a physical ability test they developed several years ago. The test evaluates their performance on certain tasks, all of which have a maximum amount of time for them to complete the evolution. However, since the test is not validated, participants are not held to the time standard. As a result, a person still can be considered a candidate for employment, even though he/she did not complete the test within the required time.

As mentioned previously, Racheal Wilson did not successfully complete BCFD's Physical Agility Test. She was, however, allowed to continue in the process and was hired for Recruit Class 19. It should be noted that she may not have been the only person who was not successful, but her records were the only ones examined by the investigative team. This was not meant to single her out, but instead to confirm the suspicion that several other individuals may not have successfully completed the test, as well. However, no other records were reviewed to confirm that speculation.

The Department needs to consider a validated test that would measure performance by prospective candidates. An example of such a test is the Candidate Physical Ability Test, or CPAT. Used by many fire departments, it appears to be an accurate predictor of how a candidate will perform essential job functions. In a conversation with Dr. James Levy, the Medical Director for BCFD, he stated his desire for a validated test, such as CPAT.

Needless to say, firefighting is a dangerous occupation and not everyone is physically and psychologically able to do the job. Firefighters who are not physically capable endanger not only themselves, but other firefighters and those they serve. In addition, those who are not in good physical condition may be at an increased risk of injury and cardiac related problems.

The investigative team also spoke with Dr. Levy in reference to the physical agility test and the subsequent physical examination recruits receive. He expressed his concern about the physical conditioning of some of the candidates he has examined in the past. His only role in the process, however, is to perform a physical examination to screen the candidates for any medical conditions that may preclude them from being hired. The examination does not evaluate the fitness level of the candidate.

Conclusion

The events that occurred on February 9 were tragic and will have lasting effects on the Baltimore City Fire Department. To honor the memory of Racheal Wilson, Recruit Class 19 planted a tree on the Academy's grounds and the auditorium was formally named the Wilson auditorium on May 11, the day her class graduated. In addition, she was posthumously promoted to Firefighter/Paramedic on February 26, 2007.

It is hoped that the lessons learned from this tragic incident will guide future decisions not only by the Baltimore City Fire Department, but by those across the entire country. The ultimate sacrifice by Racheal Wilson should serve as a reminder to fire officials everywhere that rules and standards are developed for a reason. The primary reason is to ensure that we keep our personnel safe so they may return home each and every day to their loved ones.

The death of Racheal Wilson should never be forgotten and we implore fire departments across the country to remember her by practicing safety standards each and every day.