



Montgomery County Fire and Rescue Service

POST INCIDENT ANALYSIS

**House Fire with MAYDAY
11120 Nicholas Drive
Silver Spring, MD**

Incident Date: February 23, 2013



**Submitted by
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On March 21, 2013**

Incident Overview

Note: This post incident analysis (PIA) is based upon the review of the incident audio tape, interviews with crews who operated at the fire scene and the completion and review of PIA Unit Fact Sheets. There were radio transmission issues at this incident and the incident audio tape did not record all radio transmissions. Therefore, this PIA may not accurately reflect the actions taken by the units operating at the incident.

On February 23, 2013, at 0442 hours, MCFRS units responded for a reported house fire next to 11118 Nicholas Drive in Company 18's first-due response district. Weather conditions at the time of incident were overcast with temperatures in the mid 30s and no wind.

Units arrived on the scene to find a 2-story, split-level style, single family dwelling with fire showing from a window on Side Bravo Quadrant Bravo and smoke showing from all other sides. The correct address of the property was 11120 Nicholas Drive. There were no signs of occupants outside of the structure and there were no reports of any occupants trapped inside the structure.

An aggressive interior attack was mounted and the fire was controlled and extinguished using the initial box alarm assignment plus a Fire Task Force. The structure was found to be unoccupied; it had been recently vacated a couple of days prior to the event.

During the course of fire fighting operations, a MAYDAY event occurred when a member of the rescue squad became separated from his crew while conducting search and rescue operations. The MAYDAY was cleared within 1-minute of being declared: the missing crew members were located and were all safe.

An origin and cause examination was conducted by MCFRS Fire and Explosive Investigations. The findings of that examination indicated that the fire started in the kitchen area of structure. The cause remains listed as undetermined as of the date of this written post-incident analysis.

Five firefighters suffered loss-time injuries during the course of this event: three suffered minor burns and two suffered a back injury.

Structure/Site Layout

- The structure at 11120 Nicholas Drive is part of a residential neighborhood comprised of other similar style and constructed homes.

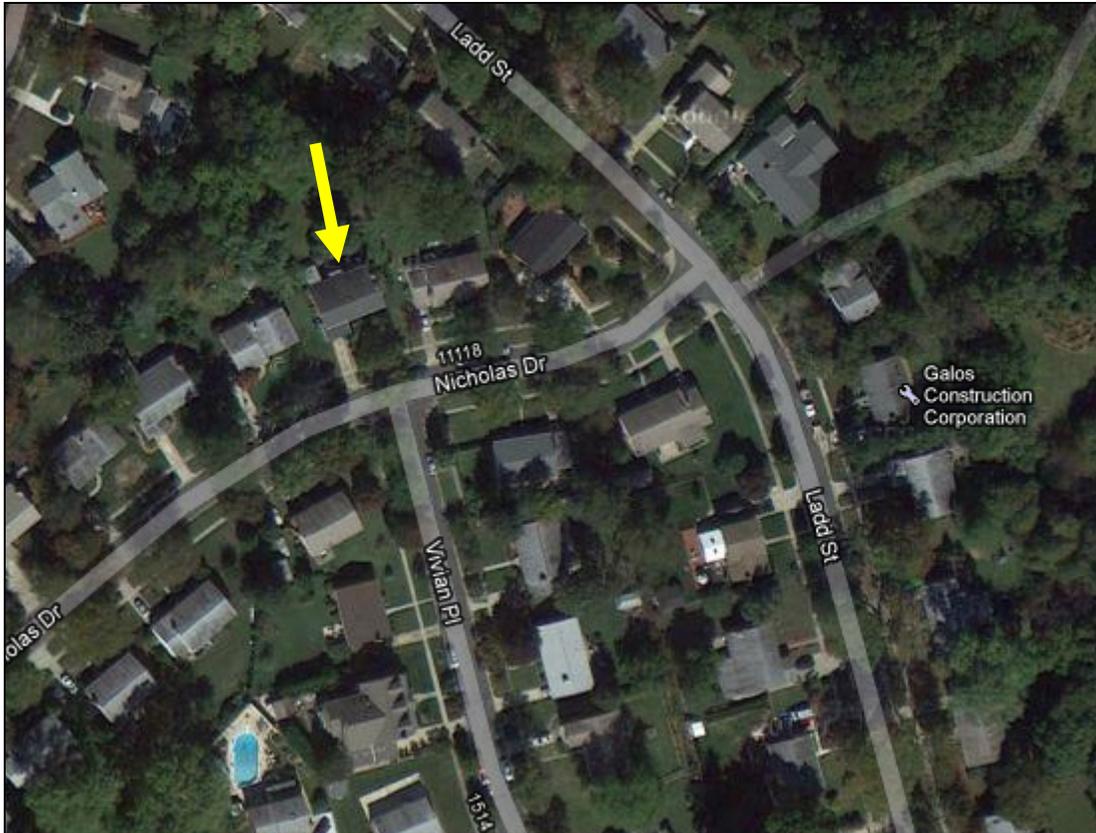


Figure 1: The house was located across from Vivian Place. (Google Maps)

- The house was approximately 2,200 square feet in size and was constructed in 1957. It was built of Type III construction with no fixed fire suppression systems.
- The layout of the house was unusual in that it was a 2-story split level style home; however the split level feature ran side to side rather than the traditional front to back arrangement.



Figure 2: 11120 Nicholas Drive – 2-story SFD – Split-Level House. (Google Maps)



Figure 3: From the Alpha Side, the house appears as a 2-story colonial style home.

- From the Alpha Side (Figure 3) of the structure, the house appears to be a 2-story, colonial style design with two complete floors, a center stairway, and perhaps a basement given its colonial style.



Figure 4: The yellow lines indicate the four different levels inside the house.

- When looking at the house from the Bravo Side (Figure 4), the offset of the windows shows that the house is really a split level design with the “split” feature running from the Bravo to the Delta side.
- The layout of each floor was open, which allowed for rapid fire growth as compartmentalization was minimal.



Figure 5: From the Charlie Side, the house appears to be a 1-story structure with a walkout basement.



Figure 6: The basement entrance on the Charlie Side.



Figure 7: All utilities entered the structure on the Delta Side.

Fire Code History

- A review of the past and current fire code requirements for the structure revealed no code compliance issues.
- However, it should be noted that had the structure been protected by an automatic sprinkler system, the fire most likely would have been confined to the kitchen area and quite possibly extinguished prior to the arrival of MCFRS personnel.

Communications

- The incident was dispatched for a possible kitchen fire next to 11118 Nicholas drive.
- Rescue Squad 742 arrived on the scene and reported fire showing from the Bravo/Charlie Corner and the Unit Officer established command.
- ECC dispatched the Rapid Intervention Dispatch (RID) upon hearing Rescue Squad 742's report.
- Battalion Chief 701 arrived on the scene and established an Incident Command Post (ICP) at the intersection of Vivian Place and Nicholas Drive.
- Almost immediately after assuming the command from Rescue Squad 742, Battalion Chief 701 began having radio communications issues on 7-Charlie. At the same, Battalion Chief 704 reported that he had radio communications issues on 7-Bravo while he was responding to the incident.
- At the time radio issues began, Battalion Chief 701 was using #2 Mobile Radio and operating on 7-Charlie. The #2 Mobile Radio is also the Vehicle Repeater System (VRS) radio – however, VRS was not activated and was positioned in the “Off” mode.
- Battalion Chief 701 was unable to transmit at times and the radio produced long sequences of honking as if the radio was out of range or had no antenna.
- Battalion Chief 704 got into the Battalion Chief 701 vehicle and reported that he had also been having the same honking issue with his mobile radio prior to moving to the ICP.
- In an attempt to resolve the problem, Battalion Chief 701 turned off #2 Mobile Radio and moved operations to the #1 Mobile Radio – which also exhibited the same problem.
- Battalion Chief 704 then located a portable radio and switched it to 7-Charlie for operation and began using that radio to communicate with companies operating at the incident.
- Battalion Chief 704 then switched the #1 Mobile Radio to 7-Delta to communicate with the Fire Task Force units and the radio worked fine on 7-Delta.
- In a final attempt to resolve the problem, Battalion Chief 701 switched the #3 Mobile Radio (Prince Georges County) to 7-Charlie and was able to finally communicate with all companies operating on the incident.
- To compound the complexity of the radio communication problems, a MAYDAY event occurred very soon after Battalion Chief 701 began to experience the honking problem on the #2 Mobile Radio.
- A review of the audio wave file provided by ECC, revealed segments of radio transmission missing from the file – all of those transmissions involved communications from the command post.

- As of the release date of this PIA, no cause has been determined regarding the radio transmission problems encountered in the command post that morning.

Pre-Emergency Planning

- There were no pre-fire plans for the structure other than a street map drawn by Station 18 personnel.
- The operations at this fire did not require any special pre-fire plans.

On Scene Operations

- Rescue Squad 742 – with a crew of six personnel – arrived on the scene first, followed by Ambulance 742D, Truck 716 and Paramedic Engine 716. Paramedic Engine 718, Engine 705 and Tower 718 arrived soon after that followed by Battalion Chief 701, Battalion Chief 704, Paramedic Engine 719, and Paramedic Engine 721.
- Rescue Squad 742's officer split the crew into two teams of three personnel with the intent of one crew conducting a search operation on the lower floor and one crew conducting a search operation on the upper floor.
- Paramedic Engine 716 assumed the Rapid Intervention Company (RIC) function on Side Alpha in the yard.
- Truck 716 had a crew of four personnel and they split into two teams – one for exterior work (driver and tillerman) and one for forcible entry and search work (officer and right).
- Truck 716's officer completed a circle check and found fire venting from a window on the 1st Floor, Side Bravo, Quadrant Bravo as well as fire venting from a window on the upper floor, same side, but Quadrant Alpha. He also noted smoke pushing from all other openings.
- During the truck officer's circle check, he found the rear sliding glass door open and observed heavy fire conditions in the kitchen area with fire extending to the second floor via the vaulted ceiling (open floor plan layout.)
- Upon return to Side Alpha of the structure, Truck 716's officer found that Rescue Squad 742's crews had entered the structure and Paramedic Engine 718 and Engine 705 had arrived at the front door with their uncharged attack lines.
- During the truck officer's circle check, Truck 716's exterior team began horizontal venting of the structure using ground ladders and other tools in preparation for entry by the engine companies.
- Battalion Chief 701 arrived on the scene and established a fixed command post and assumed the command from Rescue Squad 742. Upon Battalion Chief 701's arrival, fire was evident along the Bravo Side on the first and second levels of the house. Heavy black smoke

was pushing from all other areas of the upper floor. Fire was evident in the rear of the structure (seen through the front door from the command post) and instruction was given for companies to “open up” the rear of the house.

- Paramedic Engine 718’s driver encountered a problem developing discharge pressure on the fire pump which delayed charging the attack lines that had been stretched (Paramedic Engine 718’s crew with a 2” line and Engine 705’s crew with a 2” line) to Side Alpha by the first and second-due engine companies.
- The delay in charging the two attack lines was significant enough that the fire grew in size and extended throughout the second level before the attack lines were finally made ready for entry.
- Tower 718’s crew (3 personnel) operated as the second arriving ladder truck and assisted with ventilation and search operations.
- While crews were waiting for water on Side Alpha, Paramedic Engine 719 had stretched their own attack line (1-3/4-inch) to Side Charlie where they found heavy fire conditions in the Bravo Quadrant – kitchen area. The Unit Officer requested permission from command to attack the fire but the request was denied due to companies making entry from the front.



Figure 8: Side Alpha – as the first hose lines begin to make entry.

- As the two attack line crews prepared to enter the structure from Side Alpha, the firefighter riding the Rescue Squad 742-Left position exited through the front door and reported to Truck 716's officer that he had become separated from his crew. A second member of Rescue Squad 742's crew (Rescue Squad 742-Right) exited through the front door and also reported being separated from his crew.
- Truck 716's officer transmitted a MAYDAY for Rescue Squad 742's crew based upon the inability to account for all of the crew members. The MAYDAY was cleared within 1-minute as all crew members were located.
- Meanwhile, the interior fire attack operation commenced with full effort and the fire was brought under control in about 15-minutes. A fourth attack line was deployed (Paramedic Engine 721 from Paramedic Engine 719's pumper) as part of the interior attack operation.
- Class A foam was not available on the first two hose lines because Paramedic Engine 718's foam system was out-of-service at the time. Class A foam was used in the two attack lines stretched and operated from Paramedic Engine 719. Thus – of the four attack lines used – two had Class A foam capability.
- The initial command objectives/strategies mirrored RECEO VS (Rescue/Exposures/Control/Extinguish/Overhaul/Ventilation/Overhaul) with searches being the primary focus followed by controlling the extension throughout the structure.
- Chief 705C was the third command officer to arrive on the scene and was assigned by Command to serve as the Incident Scene Safety Officer (ISSO).
- A Fire Task Force was requested by Command once the MAYDAY was declared. A second Fire Task Force was requested a few minutes later in order to have fresh crews ready to work. However, units from the second Fire Task Force were not used and were released once the fire was placed under control.
- The Safe Structure Fire Fighting SOP was followed and units did a good job of completing tasks and following additional orders issued by command.
- Command placed the fire under control at 0537 hrs.
- The incident was divided into the following groups/divisions: Division 1, Division 2, Search, Rapid Intervention Group, Rehab, and Staging. All divisions and groups interacted and communicated effectively.
- Apparatus access was not an issue and both ladder trucks on the 1st Alarm had good positions and were used effectively in the fire attack operation.
- Attack line selection was adequate for the fire conditions present and the type of occupancy. Although the photos show a significant amount of fire pushing out of windows, the attack lines chosen were adequate

and made good progress once they received water. The bulk of the fire was darkened in about 5 to 8 minutes.

- The available water supply for the incident was adequate.

MAYDAY

- The MAYDAY event occurred at 0459 hrs – seven minutes after the arrival of Battalion Chief 701 and twelve minutes after the arrival of the first unit – Rescue Squad 742.
- The MAYDAY was called by the officer of Truck 716 when he encountered two members of Rescue Squad 742's crew in the front yard (Side Alpha) of the burning home after having been separated from the remainder of their crew.
- Rescue Squad 742's crew (two teams of three) had chosen to enter the structure ahead of a charged hose line in an effort to search for any trapped occupants.
- The rescue squad crew's decision to enter was based on nature of the occupancy, the time of day, and the absence of occupants outside. In addition, the house had the appearance of a "normal" home – not a vacant property as later determined. The crew's decision to enter was also affected by the two engine company crews stretching hose lines to the front door and the anticipation that those lines would be charged in a matter of seconds – not minutes.
- During the rescue squad crew's search of the house, the three-person team working on the upper floor encountered significantly worsening conditions forcing them all to exit the structure. One team member found his lower extremities stuck to the melting carpet and was forced to use a haligan bar to help pry him loose so that he could exit. A second team member also searching the upper floor chose to exit due to the growth in fire conditions. Both of those members exited the house via the front door on Side Alpha. The third team member exited the house via a door on Side Charlie.
- Meanwhile, the second team of three – lead by the rescue squad officer – continued to search the lower floor as fire attack operations began.
- The two rescue squad members that had exited the house into the front yard were observed by Truck 716's officer and he concluded that they were in distress. During the officer's information gathering process, it was determined that all crew members could not be accounted for and given the worsening conditions, a MAYDAY was declared using the Truck 716 Officer portable radio Emergency Button followed by the officer's verbal announcement of a MAYDAY.
- Truck 716's officer reported that he had Rescue Squad 742 Right and Left with him in the front yard and that they could not account for the rescue squad's driver, officer, or 5th person.

- Command acknowledged the MAYDAY, continued the fire attack operations, and deployed the RIC to find the missing crew members.
- Unknown to Command because of the radio problems occurring in the ICP, the officer of Rescue Squad 742 replied via portable radio that his crew was accounted for on the 1st floor in the A/B area.
- The reported missing crew members were quickly located and exited the structure.
- At this point, Command was confused over the status of all missing crew members as the report from the front yard had two members who stated they were separated, while the report from the rescue squad officer on the inside stated that all members were accounted for. Therefore, Command ordered all members of the rescue squad to report to the front yard. Command also ordered the ISSO to physically verify the presence and safety of the entire rescue squad crew.
- The ISSO completed the verification assignment within 1-minute and the MAYDAY was cleared by Command at 0501 hrs. The ISSO provided a final verification of an “All Clear” at 0505 hrs.
- The rescue squad crew was directed to rehab and was later reassigned by command to support overhaul operations.

Staging

- The Fire Task Force units were staged on Ladd Street and on Nicholas Drive. Units reported to the ICP for assignment or were given orders directly via radio.
- There were no issues with staging.

Support Functions

- Rehab was established to the rear of the ICP on Nicholas Drive and was handled by Ambulance 742D and Medic 742.
- Canteen service was provided by Canteen 705.
- Crews were relieved by fresh crews, or by crews leaving Rehab.
- Functions with outside agencies were properly coordinated (i.e. Police, Gas and Power Company,)

Safety Group

- No Standby Team was announced by Rescue Squad 742. Although they had a crew of six personnel, no crew or unit was identified via radio as the Standby Team.
- Paramedic Engine 716 (3rd Due) arrived at about the same time as the 1st and 2nd Due engines and quickly assumed the role of the RIC on Side Alpha of the structure.

- The RIC was in-place when the MAYDAY was declared and deployed immediately to locate the missing crew members from Rescue Squad 742.
- Chief 705C was assigned as the ISSO and played a key role in the verification that all missing crew members from Rescue squad 742 were located and safe. (This occurred prior to the “build-out” of the Rapid Intervention Group.)
- Once the MAYDAY was cleared, the RIC joined with the companies from the RID and formed the RIG on Side Alpha with Paramedic Engine 716’s officer serving as the Supervisor.
- Safety 700 arrived late into the incident and served only in an advisory role.
- The only safety-related issue (other than the fire) was the damaged power lines on Side Delta where the house service entry point was located. The area was cordoned off and the lines were eventually dropped by the power company.
- Five firefighters were injured on the incident – three received minor burns during fire attack operations, one suffered a back injury while donning protective clothing, and one re-aggravated an existing back injury during overhaul operations. All of the injuries were reported after the fire; they were not noted or treated during the crews’ passing through Rehab. All of the injuries were reported once crews returned to quarters.
- One of the firefighters from Rescue Squad 742 involved in the MAYDAY event received 1st and 2nd degree burns of a minor nature to his ears, a knee, and a wrist. He was transported to the burn center, treated, and released the same day.
- The second firefighter from Rescue Squad 742 involved in the MAYDAY also received 1st and 2nd degree burns of a minor nature to his wrist. He was transported to the burn center, where he was treated and released the same day.
- A firefighter from Paramedic Engine 721 suffered 1st and 2nd degree burns of a minor nature to both ears. He was transported to the burn center where he was treated and released the same day. This firefighter suffered his burns while operating a hose line during fire attack operations on the top floor of the house.
- The Unit Officer of Tower 723 injured his back while donning his protective equipment before arrival on the fire scene. His injury was not directly related to any fire attack activity.
- The Unit Officer of Tower 718 (after B-shift relief) re-aggravated an existing back injury while conducting overhaul operations inside the house.

Accountability

- No accountability board was used. Crews were accounted for by using the ICS tactical worksheet and the Daily Line-Ups carried in the Battalion Chief 701 car.
- An automatic, incident timer on the Battalion Chief 701 Mobile Data Computer was used to run a 15-minute incident duration reminder.

Investigations

- The origin of fire was located in the kitchen area. The cause of the fire remains under investigation at the time of this writing.

Lessons Learned

- The MAYDAY event was a culmination of several smaller events that had they occurred independently, the MAYDAY may have never occurred. This once again emphasizes the importance of all crews focusing on situational awareness and the interrelationship of their crew's actions on the actions of other crews.
- The rescue squad crews chose to enter the structure without the protection of a hose line. One of the crews encountered untenable conditions on the upper floor of the structure and had to rapidly exit. The decision to enter was most likely influenced by the presence of engine companies on the scene and hose lines being stretched and the assumption that water would soon be "on the way." The significant delay in charging the attack lines off of Paramedic Engine 718 resulted in the rescue squad crews being inside the structure when fire conditions rapidly changed.
- Paramedic Engine 718's driver encountered difficulty developing discharge pressure on the Crimson pumper. He tried multiple times to develop pressure but was unable to do so. The problem involved the previous setting of the throttle on the pump panel which prohibited the pump from developing pressure. The driver was able to correct the problem – but not after a significant delay. This "operational issue" was first noticed and discussed in 2009, however, this event warrants the reissuance of that troubleshooting information to all MCFRS drivers.
- Truck crews began horizontal ventilation before charged hose lines were in place. Much like the entry of the rescue squad crew, the truck crews most likely saw the two attack lines being stretched to the front door and assumed that water would soon be applied to the fire. The removal of the top floor windows on Side Alpha clearly accelerated the development of the fire and its rapid spread to the top floor.

- There was a significant delay in Paramedic Engine 719's supply line being charged. Paramedic Engine 719's driver was connected and ready for water soon after arrival, however the supply line was delayed in being charged. Paramedic Engine 721 was the pumper assigned to supply Paramedic Engine 719 and somehow a delay occurred (a final determination was never made). There is probably some merit to the practice of having the 4th person lay out, connect the supply line, and charge the hydrant rather than waiting on the next arriving pumper. MCFRS has never addressed the use of the 4th person on a 4-person engine company. The assumption is that person remains on the engine and goes with the officer when in fact, there should be some consideration given to having that 4th person be the "hydrant-person" and establishing the water supply before meeting back up with the crew.
- Rescue Squad 742 had a six-person crew and divided into two teams of three. Command never knew the staffing level of the rescue squad or that they had split into two teams. In fact, based upon the radio traffic during the MAYDAY event, Command assumed that the rescue squad had a crew of five personnel – since the report was that they were looking for the "driver, officer and the 5th." Command learned that the rescue squad had a crew of six when the rescue squad cleared rehab and reported back to the Command Post stating, "Rescue Squad 742 with six." The area of unit staffing on volunteer staffed units is a difficult process to "get a hold of." The Daily Line-ups carried by the career battalion chiefs rarely reflect the accurate staffing on the volunteer-staffed units and unless a unit officer states that he or she has more than three persons on a rescue squad or truck – Command has no way of knowing the staffing levels.
- In Prince Georges County – staffing levels are provided to the Incident Commander as soon as he arrives on the scene and assumes the command. A similar model is needed in MCFRS. Had Rescue Squad 742's entire crew been in a serious MAYDAY event, Command would have been looking for three persons since there was no indication that staffing was any greater than minimum.
- The radio system failed. For whatever reason, the two command vehicles had a failure of communications on two radio heads. However, the battalion vehicle command platform provides four mobile radios plus several portable radios and at this incident, the additional mobile radios and portable radios proved invaluable as they were used to manage radio traffic during the MAYDAY event. The battalion vehicle command platform needs to be the platform from which all command operations are run.
- The second arriving battalion chief was assigned immediately to the command team instead of as an ISSO because of the escalation that was occurring. This assignment proved critical when the

MAYDAY event occurred because it placed two command officers in the Command Post to handle the radio traffic and RIC actions.

- A Personnel Accountability Report was never conducted after the MAYDAY was released. This occurred because the MAYDAY was quickly resolved and only involved two crew members not knowing the location of the remainder of their crew. However, Command should have conducted a PAR as required by policy.

Units on Incident

1st Alarm

PE718, E705, PE716, PE719, PE721
AT718, T716
RS742
A742D
BC704
BC701
C705
C705C
C742
DC700
SA700

RID

AT719
RS741
M742

Task Force

PE725, E754
T725
CT705
AR716

Task Force

PE723, PE712
AT723

Conclusion

This house fire response provides a good example of how the “little things” can really make a difference when they all occur at the same time. Searching ahead

of a hose line, a delay in charging attack lines, a delay in establishing a water supply, venting before a charged hose line is in position, radio system failure: any one of which could easily be overcome without incident – however, by all occurring together resulted in a near-miss MAYDAY event at a fire involving a vacant house.

The strength of this incident was that when the MAYDAY was announced, crews went into action and quickly located the missing crew members while at the same time mounting an aggressive interior fire attack that brought the fire under control in about 15 minutes. While stressful, the MAYDAY was handled in an organized manner as opposed to a chaotic approach. The Unit Officers did a great job of following direction and staying focused on their assigned tasks.