



Montgomery County Fire and Rescue Service

POST INCIDENT ANALYSIS

**House Fire with Firefighter Injuries
809 Orchard Way
Silver Spring, MD**

Incident Date: June 27, 2013



**Submitted by
Battalion Chief Kelvin M. Thomas**

Incident Overview

Note: This post incident analysis (PIA) is based upon the review of the incident audiotape, interviews with crews who operated at the fire scene and the completion and review of PIA Unit Fact Sheets.

Weather conditions at the time of the incident were cloudy with passing showers with temperatures in the low 80's.

On June 27, 2013 at 2034 hours, the Emergency Communications Center (ECC) dispatched units to a reported house fire at 809 Orchard Way in Fire Station 24's first-due area.

Units arrived on the scene to find a 2-story single family dwelling with smoke showing from an addition on the Delta side of the house. Within one minute the fire advanced to the free burning stage, with fire venting from windows on the Charlie and Delta sides (See figure 3).

There were no reports of occupants trapped inside the house. The occupants (calling party) evacuated safely to a next door neighbors house.

Crews initially attempted an interior attack on the fire via the front door of the house but due to the unusual interior layout, there was no access to the area of the fire. An exterior "Blitz Attack" was carried out on sides Charlie and Delta. Once the large amount of visible fire was controlled from the exterior an interior-only attack commenced. The fire was extinguished using the initial box alarm assignment, a Rapid Intervention Dispatch, a Fire Task Force, plus two additional EMS units.

During the course of fire fighting operations, three fire fighters were injured. Two fire fighters were transported from the scene to local trauma center for medical treatment and admission for continued medical observation. One other fire fighter reported an injury after returning to the fire station that did not require treatment and was processed as a "record-only" report.

Maydays were not called by any of the injured firefighters or their crews during the course of the incident. ***Note: at the time of this writing two fire fighters have returned to full-duty, but the most seriously injured remains off on extended disability leave.***

There were no civilian injuries and all occupants of the house were accounted for. MCFRS Fire and Explosive Investigations conducted an origin and cause examination. The findings of that examination indicated that the fire started in, or

near, a fluorescent light in the addition. The official cause of the fire is listed as accidental.

Structure/Site Layout

- The structure at 809 Orchard Way is part of a residential neighborhood comprised of other similar style and constructed homes.

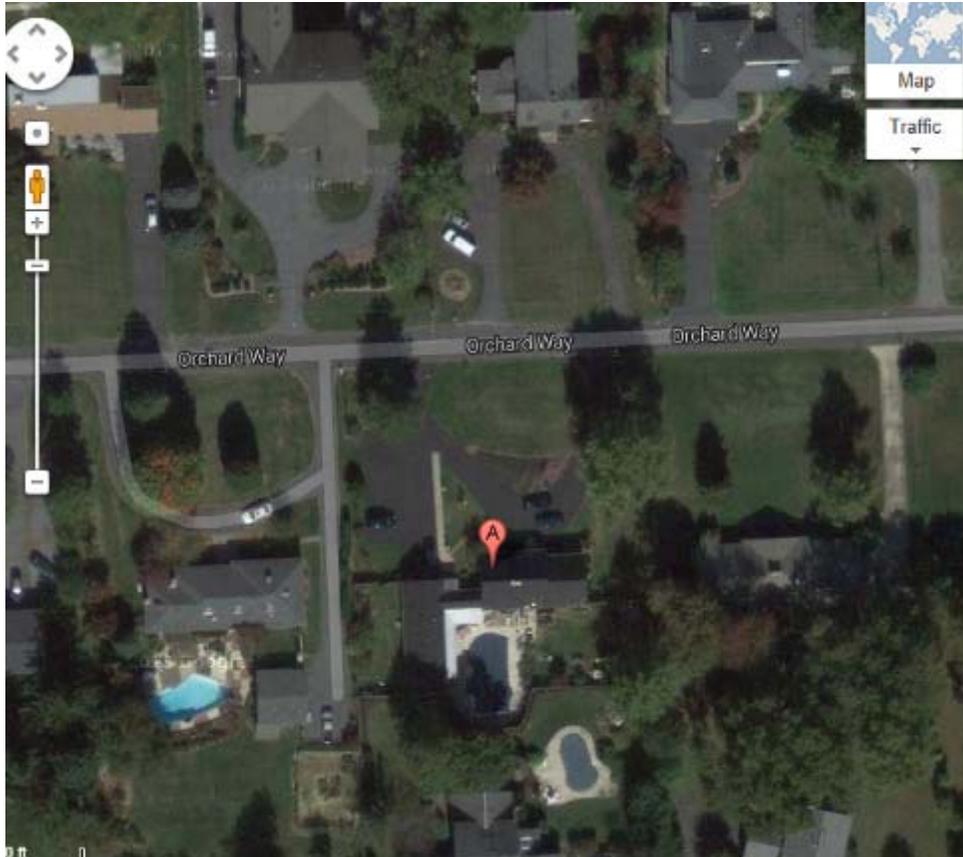


Figure 1: Aerial view of 809 Orchard Way and surrounding homes. (Google Maps)

- The house is approximately 3,500 square feet and was constructed in 1950. It was built of Type III construction with no fixed fire detection or suppression systems.
- The main structure consists of two levels; the second floor resembles a finished attic space or a half-story. An attached structure was originally built as a two-car garage but was later converted to a living and storage space. On the 9-1-1 call an occupant referred to the addition as the “Mother-in-Law Suite.” The main house and addition were connected by a breezeway that had no interior thruway. This configuration is unusual and hampered the initial interior efforts.



Figure 2: 809 Orchard Way – 2-story SFD with a finished addition (area of origin) connected to the main house by a breezeway with no interconnection.



Figure 3: From side Charlie moments after the arrival of FD units but prior to the initial knock down.



Figure 4: Side Charlie view shows the close proximity of the swimming pool to the addition and main house (just to the right of the glass table).

- A swimming pool located on side Charlie within feet of the main house and addition. Heavy smoke conditions around the house reduced visibility, which created a concern for fire fighters not seeing it and falling in.
- A 5-foot fence on the Delta side of the house further hampered hose line advancement and getting equipment around to the rear of the house (See figure 5).
- A faux breezeway provided exterior access to the addition but added to confusion by not providing access between the addition and the main house (See figure 2).



Figure 5: From the Charlie Side of the addition indicates heavy fire involvement and limited access to the rear of the addition due to a fence in close proximity to the house, further hampered by overhaul debris.



Figure 6: Ventilation efforts in the addition were hampered by because firefighters believed they were ventilating real windows, but were surprised to find an original garage door behind the window openings.



Figure 7: Side Alpha of the addition shows an existing garage door still present after a fully functional window was removed for ventilation.

Fire Code History

- There are no known code compliance issues.
- The structure has no fire protection system other than battery operated smoke detectors.

Communications

- A house fire assignment was dispatched to 809 Orchard Way, which was initiated by a 9-1-1 caller.
- Ambulance 724 arrived on the scene and reported smoke showing from a single-story single family home.
- ECC dispatched the Rapid Intervention Dispatch (RID) upon hearing Ambulance 724's report.
- Battalion Chief 701 arrived on the scene and established Level II command and set up the Incident Command Post (ICP) in the driveway of the dispatched address.
- ECC dispatched a Fire Task Force upon the Incident Commanders request and assigned them to talk group 7 Delta.
- The only known radio issue was with Engine 712's officer portable. It was muffled and hard to read and appeared to be isolated problem with that radio.
- The Vehicle Repeater System (VRS) was not needed or used on this incident.
- This incident operation was assigned to talk group 7 Charlie; the task force units were assigned to talk group 7 Delta until directed to switch over to talk group 7 Charlie by the Incident Commander.
- Command utilized geographical and task assignments – Division One, Division Two, Side Charlie Division, Rapid Intervention Group, Rehabilitation Group, and later the Addition and Roof Groups.
- The crews utilized good radio discipline.
- In one case a unit driver reported known fire conditions without direction from his officer.
- An injured firefighter exited the building and reported the occurrence on 7 Bravo. *The injury transmission on 7 Bravo was reportedly heard by personnel who were not on the scene, but could not be confirmed via audio file provided by ECC.*
- ECC provided a long alert tone so that the Incident Commander could deliver a safety message regarding a pool on Side Charlie in close proximity to the house.
- ECC provided evacuation tones and an evacuation message at the request of the incident commander.
- The incident commander communicated timely incident updates stating progress of the fire with objectives and tactics.

Pre-Emergency Planning

- There were no pre-fire plans for the structure other than a street map drawn by Station 24 personnel.
- The operations at this fire did not require any special pre-fire plans.

On Scene Operations

- Ambulance 724 was the first unit to arrive on the scene and provided the Initial On-Scene Report. Paramedic Engine 718 and Aerial Tower 718 arrived on the scene moments later and provided an updated Initial On-Scene Report.
- Battalion Chief 701 and Battalion Chief 704 arrived on the scene simultaneously.
- Battalion Chief 701 established level II command on Side Alpha of the structure, while Battalion Chief 704 quickly reported to Side Charlie and provided additional size-up information.
- A fixed Command Post was established inside the Battalion Chief 701 vehicle and was identifiable by its green flashing strobe light on the top of the vehicle.
- An incident command team was formed inside the Command Post as additional chief officers and command support arrived.
- The command team consisted of Battalion Chief 701, who was the incident commander and primary communicator; Chief 712 managed the tactical worksheet; Duty Chief 700 was the incident advisor; and Command Support 700.
- The fire was visible from the Charlie and Delta sides of the structure. This area was an addition onto to the back of the house.
- Paramedic Engine 718 initiated water supply, which was completed by Paramedic Engine 724.
- Paramedic Engine 724 and Paramedic Engine 718 advanced the initial attack and backup lines respectively into the main house via the front door but were not able to advance into the addition because the breezeway did not have an inner connection between the house and addition.
- With the approval of the Incident Commander, the Charlie Division Supervisor directed Paramedic Engine 715 to knock down the visible fire from the exterior on sides Charlie and Delta with a hand line.
- After knockdown, interior divisions and groups were formed to support the incident priorities and strategy.
- The initial incident scene strategy/priorities mirrored RECEO-VS (Rescues, Exposures, Confinement, Extinguishment, Overhaul, Ventilation, and Salvage), confirming the status of the occupants by searching the house and confining/extinguishing the fire in addition being the goal.
- Chief 715 arrived on the scene and assigned the initial Incident Scene Safety Officer responsibility.

- Paramedic Engine 712 initiated a secondary water supply, which was completed by Paramedic Engine 725.
- Paramedic Engine 712 advanced a hand line to the second floor of the main house to begin checking for extension.
- Paramedic Engine 712 was assigned the Division Two supervisor.
- Paramedic Engine 725 initially stood by on Side Alpha until becoming later assigned to operate in the addition.
- Command made an announcement to all units to use caution because of a swimming pool in close proximity to the house on side Charlie.
- Rescue Squad 742 Bravo confirmed that the primary search was negative. The occupants were located at a neighbor's house and all accounted for with no injuries.
- Command received a report of a firefighter assigned to Aerial Tower 718 having trouble breathing on side Alpha. Medic 715 (from the Rapid Intervention Group) provided treatment and transport of the injured firefighter.
- Command requested a Fire Task Force and an additional medic unit to backfill the rapid intervention medic unit.
- The Incident Scene Safety Officer was not immediately made aware of the injured firefighter.
- Units operated inside the main house and addition on divisions 1 and 2. Fire conditions changed as observed from the increase in fire volume from the rear of the house and changing smoke colors from brown to billowy black in a matter of thirty seconds. The Incident Commander ordered an evacuation of all personnel from the house. ,
- ECC sounded the evacuation tones and ordered an evacuation of the structure per the Incident Commander's request.

The evacuation marked the 20-minute mark in the incident.

- At the 20-minute mark fire was contained to the addition. The second floor in the addition was compromised due to the intense fire conditions; the main house was unaffected partially because of the separation created by the faux breezeway.
- The Incident Commander conducted a Personnel Accountability Report (PAR) check for all personnel. All personnel were accounted for during the PAR check.
- Due to the complexity of the fire suppression effort in the addition, the Incident Commander revised a new Incident Action Plan. The new Incident Action Plan focused primarily on the addition where the remaining fire was still burning.
- The Addition Group and Roof Groups were created in place of divisions to allow the units to move between the first and second floor of the addition. This area was relatively small and filled with clothes and furniture limiting the number of personnel.

- The Roof Group was supervised by Chief 715, and the Addition Group was supervised by Battalion Chief 704.
- Divisions One and Two in the main house were disbanded and the units operating within those groups were integrated into the newly formed Roof and Addition Groups.
- While assisting with hose line management a firefighter assigned to Paramedic Engine 718 came in contact with an energized electrical panel in the first floor stairwell of the addition and was shocked. He continued operating for a short time after the contact before reporting the incident to his officer and exiting the building to seek treatment.
- Ambulance 724 began treating the injured firefighter (who suffered an electrical shock) on side Alpha of the structure.
- Command received a report of the injured firefighter who was being treated by Ambulance 724.
- Command assigned Medic 712 to assist Ambulance 724 with the treatment of the injured firefighter.
- Rescue Squad 742 Bravo reported to command a “live electrical panel” in the stairwell in the addition, which is located in the Alpha quadrant.
- Command requested that the Incident Scene Safety Officer (now Safety 700) block the stairwell to prevent any additional contact with the panel.
- Rescue Squad 742 Bravo reported to command that the secondary search was negative.
- The Roof Group created access and ventilation holes on the roof of the addition to access areas not accessible from the interior.
- Command established the Rehab Group with the crew from Ambulance 724 and they set up behind Truck 715 across the street from the incident.



Figure 8: Side Charlie – the bulk of the fire is extinguished but heavy smoke is venting from the entire structure (pictures are taken by a neighbor).

Electrical Emergency

- Command ordered remaining firefighters out of the addition because of the energized area; crews operating on the roof and on the exterior were allowed to continue operating until reporting to Rehabilitation.
- A second Personal Accountability Report was conducted and all personnel were accounted for and confirmed out of the building.
- Units remained out of the structure until PEPCO arrived and confirmed the power cut to the entire building.
- Command requested an additional BLS unit to the scene to standby.
- PEPCO arrived and pulled the electrical meter.
- Units rotated in and out to complete salvage and overhaul operations.
- Nighttime interior and exterior lighting provided by the special services units were adequate.

Staging

- The Fire Task Force units were staged on Orchard Way until called into the scene by command and assigned a task.

Support Functions

- Rehabilitation was established directly across the street from the incident near the rear of Truck 715 and was managed by Ambulance 724.
- Crews on the initial assignment reported to Rehab prior to reassignment.

- Canteen 705 provided hydration and snacks.
- Air 716 refilled SCBA cylinders.
- The displaced occupants declined Red Cross assisted and opted to stay with nearby family members.

Safety

- Ambulance 724 was the assigned 2-out unit.
- Paramedic Engine 715 was the assigned Rapid Intervention Company (RIC). Its small line firefighter (third) initially assisted with a Blitz Attack on Side Charlie before reuniting with the rest of the crew.
- A Rapid Intervention Dispatch (RID) was dispatched, and a Rapid Intervention Group (RIG) was formed but not engaged – no Mayday's were called.
- Paramedic Engine 715's officer was the assigned Rapid Intervention Group Supervisor by command.
- Chief 715 was the initial ISSO until relieved by Safety 700.
- Three firefighters were injured on the fire ground.
- The first reported injury occurred as a result of smoke inhalation. Upon dismounting from Aerial Tower 718 which was positioned on side Alpha of the structure, the firefighter reported encountering heavy smoke conditions prior to donning his SCBA face piece and entering the structure. While operating inside the structure the same firefighter removed his regulator in an effort to communicate with a crewmember and inhaled smoke. He attempted to continue working but was quickly overcome and exited the building. *His officer was not immediately notified of his departure but became aware moments after exiting.*
- A second injury occurred when a firefighter assigned to Paramedic Engine 718 came in contact with an energized electrical panel while assisting with advancing another crew's hand line. He continued to work within the structure until the pain to his upper body became more intense, and then exited the building. *His officer was not immediately notified of his departure but became aware moments after exiting.*
- A third firefighter sustained a minor hand injury, which was reported after he returned to the station. He was not treated and did not lose work time.
- The two firefighters were transported to a local trauma/burn center with serious injuries. One firefighter was kept in the hospital overnight for observation and the other firefighter was treated for several days and remains off-duty at the time of this writing.
- After the second injury, the Incident Scene Safety Officer (Safety 700) was made aware of the energized electrical panel inside the addition and cordoned off the area.
- Communications between the incident commander and Incident Scene Safety Officer with regards to firefighter injury notifications were not complete. The Incident Commander assumed that the Incident Scene Safety Officer was fully aware of the injuries based on radio transmissions.

- Safety 700 performed an injury investigation and provided a final report to the Incident Commander
- Not all safety policies were followed during or at the conclusion of the incident:

Accountability

- Crews were accounted for by using the ICS tactical worksheet and a verbal Personal Accountability Check via the radio from the Incident Commander.
- Two Personnel Accountability Report checks were conducted, one at the initial 20-minute duration mark. The second Personnel Accountability Report check was conducted 20 minutes after reentry into the addition.
- All personnel operating on the fire ground were accounted for during both Personnel Accountability Report checks.

Investigations

- At the conclusion of the cause and origin investigation conducted by MCFRS Fire Investigators, the cause of the fire was determined to be a result of a faulty fluorescent light on the second floor of the addition.

Lessons Learned

GOOD POINTS:

- Paramedic Engine 724 recognized that they would not be the first engine and advised the second engine (Paramedic Engine 718) to change positions to first due.
- Water supply instructions between the 1st and 2nd, and 4th and 5th due engines were good.
- Initial on-scene report by Ambulance 724 was good, which included an update regarding the status of the occupants, location of the fire, and a pool in close proximity to the house on Side Charlie.
- Detailed Side Charlie/Delta report of fire conditions and recommendation to perform a “Blitz Attack” from the exterior in order to quickly control the fire.
- Initial communications from the Division One Supervisor on the conditions inside the structure and whereabouts of the crews – led to the decision to perform a “Blitz Attack.”
- Good command presence and the quick formation of a “command team” inside the command post.
- Good on-going size-up reports from division and group supervisors.
- Quick reports on the status of the occupants – timely searches of the structure.
- Quick treatment and transport of injured firefighters to the correct medical care.

IMPROVEMENT POINTS:

- Unit officers and crews must perform thorough circle checks whenever possible.
- The initial line placements of the first two engine companies were not effective and did not contribute to the control or extinguishment of the fire.
- Crew integrity and accountability – there were reports of crewmembers performing tasks without the approval or knowledge of their respective unit officers.
- Two firefighters were injured and left the building without the first notifying the officer.
- The command post location was too close to the structure and was initially affected by heavy smoke conditions, which affected the incident scene view and air quality inside the Command Post.
- The communication between the Incident Commander and Incident Scene Safety Officer on the notification of the injured firefighters – assumptions were made with regards to whether the Incident Scene Safety Officer was aware of the injuries.
- Crew integrity was compromised when the injured firefighters exited the building without notifying their respective officers.
- When it became apparent that the injured firefighters were missing, the assigned unit officers did not call a MAYDAY.
- The Incident Commander did not immediately report the firefighter injuries to the Incident Scene Safety Officer.
- The Incident Commander or Safety Officer did not immediately impound the injured firefighter's PPE and SCBA.

SPECIFIC TRAINING NEEDS IDENTIFIED:

This house fire event was very challenging. It was immediately apparent that this fire was a well-advanced and required a coordinated and rapid-fire attack. Because the initial circle checks were not conducted, the exact location of the fire was not identified and initial interior attack lines never reached the fire in the rear addition.

Fire officers too often do not to perform complete size-ups on incidents, for no reason other than speed. It is imperative that thorough assessments be made before actions are taken. With the availability of videos and pictures of fire incidents on various media sites, firefighters must use them to practice size-ups more often. I also recommend that unit officers be afforded the opportunity to use the Command Development Center as command officers do on a yearly bases.

The improper use of SCBA contributed to a significant injury of a firefighter during this incident. Regardless of firefighter's tenure in this profession, it is very important that each of us to continue to practice the proper use of SCBA more often than during annual recertification.

Units on Incident

1st Alarm

Paramedic Engine 718
Paramedic Engine 724
Paramedic Engine 715
Paramedic Engine 712
Paramedic Engine 725

Tower 718
Truck 715
Rescue Squad 742 Bravo

Ambulance 725
Battalion Chief 701
Battalion Chief 704

Additional Units

Chief 712
Chief 715
Duty Chief 700
Command Support 700
Safety 700
Fire Marshal 755
Fire Marshal 762

Rapid Intervention Dispatch

Truck 725
Rescue Squad 741

Medic 715

Task Force

Paramedic Engine 721
Engine 740

Truck 716

Canteen 705
Air716

Additional EMS Units

Medic 712
Ambulance 715

Conclusion

This house fire was complex in nature because of a well-advanced fire in a large converted addition. Crews worked very hard to contain and extinguish this fire. Fortunately there were no civilian casualties, as they were able to escape upon discovering the fire. Unfortunately three firefighters were injured while operating at this fire. Initial and ongoing size-up information, a sound but flexible action plan, and hard working personnel ultimately led to the total mitigation of this event.