Townhouse Fire
13248 Country Ridge Drive
March 1, 2009

MIDDLE-OF-THE-ROW TOWNHOUSE
FIRE IN THE BASEMENT WITH EXTENSION
TWO FIREFIGHTERS INJURED

Executive Summary

On the morning of March 1, 2009, units were dispatched for a townhouse fire – reporting fire in the basement at 13248 Country Ridge Drive. Units arrived to find a working fire in a middle-of-the-row wood frame town home. Fire was in the totally excavated basement which had no exterior entrance. One very small window was the only exterior port to the basement and it was equipped with security bars.

After repeated failed attempts to attack the fire by descending the stairs, a successful coordinated attack from the small window on Side C was accomplished.

Two firefighters were injured in this incident. The officer on AT729 received orthopedic injuries when attempting to descend the stairs and a firefighter from E729 received minor burns to the face. Both were taken to a medical facility where they were treated and released.

The incident required two alarms due to the following:

- Complexity – delay in getting to seat of fire in the basement was allowing the fire to grow exponentially. Additionally, the true labor requirements for overhaul were not known.
- Exposures – Potential vertical and lateral spread to adjacent exposures required a contingency plan.
- Injury – The early injury to a firefighter placed one company OOS and required the assistance of other units before the incident was stabilized.

While this was not a near-miss or a significant large-loss incident, a number of minor issues were present to justify a post incident review. Regardless, a post incident review is required due to a firefighter injury. Additionally, three significant incidents have occurred over recent months where firefighters were operating above the fire and had fallen through the floor. The fire in the basement of this unit significantly weakened the floor/ceiling assembly which caused sagging. History could have once again repeated itself if it were not for alert and experienced crews identifying the hazard early.

As I write this summary, I was part of another incident in Olney on March 11, 2009 where crews were dangerously operating above a basement fire. There too, there was partial collapse of the floor.

It was discovered that several uncoordinated factors may have had an impact on strategy, tactics and firefighter safety. This document will look at miscues, lessons learned and recommendations to prevent future occurrences.

Incident Statistics:

- 90 Personnel including:
  - 2 BLS Units (4 personnel)
  - 3 ALS Units (6 personnel)
  - 8 Chief Officers (8 personnel)
  - 10 Engines (53 personnel)
  - 6 Truck Company's (19 personnel)
  - 2 Rescue Squads (6 personnel)
  - 9 Support (10 personnel)
    - 3 Units from Frederick County are included – 1 air unit, 1 engine and 1 truck
- No Civilian Injuries
- 2 firefighter injuries
- $200,000 loss to main structure
- $25,000 loss to contents
- $10,000 loss to each exposure on Sides B & D.
- 1 deceased dog – found in cage near the area of origin
- Cause - Accidental

Construction Features and Fire Behavior

The fire building is located in the Churchill Town Sector. It is a two-story wood frame town house – center unit with an excavated basement. The basement/foundation is poured concrete. It is equipped with a fire place in the basement. The siding was brick veneer on the front and siding on the rear. It was situated one from the end unit and had 1,628 SF of enclosed area.

The unit contained open stairs with landings on each floor. The basement contained partition wall assemblies separating the front and back and it also had an enclosed area under the stairs being used as a closet. The assembly beneath stairs held which prevented a burn through. The other partition assembly also delayed lateral spread to the front of the basement. The stairs became the path of least resistance, allowing all heat and other products of combustion to vent to the upper floors. There was a single small window on Side C of the basement.

The area of fire origin was in the basement near the rear of the home – Quad B and C. A young boy was cleaning the basement with a broom. The female occupant had just started a fire in the fire place using a wax log (like a Duraflame log). The broom somehow caught fire and ignited nearby combustibles. The young boy went upstairs to alert the adult who came down in an attempt to extinguish the fire. Unsuccessful, both retreated.

Initial Dispatch & Tactical Channel Concerns

At 10:16 hours on March 1, 2009 the following units were alerted by pre-alert for a town house fire at 13268 Country Ridge Drive:

E722 E735 E753 E731 RE709
AT729 AT735
RS729
A722
Germantown & Gaithersburg Duty Officers
BC703
BC705

After the pre-alert, E729 & A729 both cleared other incidents and were added to the call. The audio for the actual dispatch netted the following:

E729 E722 E735 E753 E731
AT729 AT735
RS729
A722
Germantown & Gaithersburg Duty Officers
BC730 & BC705

On 7C, there were a few radio transmissions resulting in E729 taking second due. ECC advised the response order change to E722, E729 and E735 but stopped short of advising the 4th and 5th engines. This may have been an issue and delayed E753 (4th due) from quickly taking the RIC.

The RID, Task Force, and the completed second alarm were not easily captured by the IC. DC700B arrived and attempted to capture that information. In addition*, I would say most units react to the pre-alert and immediately switch over to the tactical channel before the actual dispatch. In this case, the response change may not have been noted. ECC should notify the responding Chief Officer as well as other affected units of the changes ASAP. Additionally, I believe ECC should notify Command of the RID units – otherwise it is hard to capture.*

Initial on Scene Report and Critical Timeline*

*Times are estimated by using the first time stamp for AT729 (on-scene) then adding time lapse on the 7C audio. One should note how quickly time passes even though it does not appear that way on the scene. That is why someone needs to watch the clock.

At 10:21:08 (0) AT729 was the first unit on the scene, verified it was the correct address – reporting “heavy smoke showing” and a working fire. AT729 did take command “until the arrival of the engine company.”

10:23:19 (+2:11) RS729 completed a 360 and reported all occupants out with two stories from the Charlie side – no rear entrance to the basement and heavy smoke.

10:23:58 (+2:50) E722 arrives, briefly assumes command, assigns E722 and AT729 to attack and RS729 to Search & Rescue.

10:24:20 (+3:12) BC705 arrives – makes contact with E722 and assumes command. E722's officer joins his crew inside.

10:25:07 (+3:59) Task Force Requested

10:25:19 (+4:11) E735 with Side C Report

10:25:31 (+4:23) E735 advising working basement fire

10:26:58 (+5:50) Two Out Assigned

10:27:11 (+6:03) AT735 advising window on Side C can be used for attack

10:28:13 (+7:08) RS729 reported injured firefighter (AT729's officer) and reported primary search completed on first and second floor.

10:29:33 (+8:22) E722 holding the stairs – advised units to hit fire from the outside

10:30:49 (+9:41) Fire Knocked

10:33:24 (+12:16) requested balance of second alarm

10:34:38 (+13:33) E753 verified – advised to take RIC

Summary of Actions

First arriving units quickly determined that there was no exterior basement entrance and collectively formed an action plan to enter the first floor and attempt to descend the interior stairs.

RS729 had completed his 360, gave an excellent report from the rear and identified that the occupants were out of the house.

Both company officers failed to identify a two-out during the initial assumption of command and the transfer of command. As soon as the Level 2 IC realized this, he polled E729 who was found to be engaged with a back up line. E731 arrived and was quickly given the assignment. It was later discovered that A729 assumed that role but no official radio transmission was made.

BC705 arrived, assumed command and acknowledged E722's initial plan of action which included a good accountability transmission (units, location of entry,

and reason for entry). There was no indication of a change in personnel assignments. That is, E722 should have had 4 total personnel, E729 (4), AT729 (3). However, there was no indication that E729 was backing up the initial attack however, that was their SOP assignment.

The IC on this incident routinely carries the rosters for Battalion 5, 3 & 4. It is a form of proactive accountability. It is recommended that everyone carry the rosters of those units one is likely to encounter.

Crews aggressively prepared the building for fire attack by racking out all windows (rapid horizontal ventilation). This relieved significant heat, smoke and pressure from the upper floors.

Engine crews effectively protected the stairs while RS729 conducted a primary search of the first and second floors. Before attempting to take the stairs, the engine company "penciled" the stairwell with a hose stream in an effort to cool the route. Attempts to take the stairs, however, proved to be impossible. At that time, E722's officer advised command to have the exterior crews hit the fire from the small window on Side C.

The fire was brought under control fairly quickly using the exterior strategy. The remaining strategies and incident priorities were seamlessly accomplished only requiring some crew rotation. There was only a slight challenge with venting the limited access basement and providing necessary logistical support for overhaul and FEI activity.

During the initial attack, the lieutenant from AT729 received orthopedic injuries while attempting to take the stairs. In addition, facial burns were noticed later on a firefighter from E729. Both injuries will be discussed later under "challenges and future considerations."

Challenges and Future Considerations

Although no one suffered a critical injury and the incident was stabilized fairly quickly, a number of issues were addressed that affect coordination, policy and practice. These issues are addressed below with comments and recommendations.

Dispatch & Tactical Channel

The pre-alert and initial dispatch was not the same – E729 and A729 were added. Some radio transmissions on 7C verified running response for E722, E729 & E735 but stopped short of advising the 4th and 5th engines. This may have caused some confusion with E753 who was "pre-alerted" as 3rd due and was unknowingly changed to 4th due. This may have created a delay in RIC formation.

Additionally, A729 was added but A722 also remained on the call. ECC never cancelled A722. A722 was called by ECC later after they were dispatched on another call. A722 responded from quarters. A729 was not a tactical resource and should not have been added to the call.

Additionally, with the radio restrictions on the tactical channel it is hard to capture other resources being assigned to the incident (i.e. RID & TF). An aid would be beneficial from the onset. Later arriving Chief Officers also have difficulty in obtaining that information in a dynamic incident.

Initial on Scene Report

The initial on scene report by AT729 included the following:

- Address verification
- Heavy Smoke Showing
- Working Fire
- The building was being evacuated
- Command until arrival of the engine company

The report lacked some pertinent information that could have painted a better picture, such as:

- 2-story middle of the row townhouse
- Wood frame construction
- Side of the Building

Units should remember to paint the best picture possible. In a multi-family dwelling, construction features and the location of the fire make a huge difference with tactical positioning and strategy.

Two Out

AT729 (initial command) and E722 (when they arrived) both failed to assign a two-out. There were several people on the front lawn when I arrived preparing to enter. E722 (3+driver) E729 (3+driver) AT729 (3) RS729 (3) = PAR of 14 for initial attack. Initial command could have assembled any combination for two-out. Documents indicate that A729 assumed the duties of two-out although they were not formally assigned. Lacking verification, command assigned the 5th engine as the two-out. The 4th engine (E753) was delayed getting in place to assume RIC.

Water Supply

There were no water supply issues but there was a coordination issue with the initial supply line.

E729 charged the supply line as the operator of E722 made the connection. The operator had the 4" supply line between her legs when it was charged. This could have caused significant injury. However, the supply pumper could not see the attack engine. There was a single radio transmission at +6:02 simply stating "E722, water is on the way." If possible, the supply pumper should ask the attack engine if they are ready for water.

Tactical Positioning

The second aerial arrived to find a non-tactical resource (i.e. a chief's car) parked on Middlebrook Road near the fire taking a prime position. Additional responding support personnel and command officers need to be cognizant of tactical positioning and park well away from the impact area. They need to think like an engine driver or a truck driver.

Initial Attack Line Deployment

By SOP, E729 was to pull a back up line. Both E722 and E729 arrived simultaneously and executed a proper water supply with E722 taking first due. Crew members of E722 recall seeing a firefighter running up the sidewalk near E722 as they were laying out.

As E722 came to a stop, the firefighter from Co 29 (later determined to be off of E729) pulled a cross lay (first line) off of E722 and advanced it to the front of the building.

The balance of E729's crew (with E729's officer) later pulled another line (2nd line) off of E722 which was the official backup line.

The first line that came off of E722 caused some confusion with the officer and crew of E722. The line was pulled before anyone dismounted from E722 and it was done without coordinating with the officer. The net result was that E722 personnel did not pull an attack line which would have been the initial attack line. Once the Captain on E722 realized what had happened, he was compelled to use the first line (E729's) for the initial attack.

The above actions caused a **breakdown in crew integrity** with one firefighter from E729 on the initial attack line, and the other firefighter and E729's officer on the back up line. This can cause accountability issues since E729's crew is now separated.

Regardless of "SOP," initial line deployments must be coordinated. E722's officer comes to the event with a plan and a line is pulled off of his rig as the brake is pulled. Traditionally, the first line pulled off an attack piece is the primary attack line. The firefighter from E729 should have met the officer of E722 as he departed the cab and coordinated the activities.

The Initial Attack Plan – taking the stairs

The initial attack plan was coordinated and known to all participants. E729/E722 protected the stairs for the primary search, then "penciled" the stairs in an effort to cool the atmosphere for entry. AT729's officer then proceeded down the stairs backwards ahead of the charged hose line and kicked an object on the first landing. The object fell on the officer and he sustained injuries. He was able to exit the building (along with his crew).

Construction and fire behavior caused the open stairwell to become a chimney. This was the only place the products of combustion could go. Operating above the fire is already very dangerous. Attempting to take the stairs would be like looking down the throat of hell. Treading ahead of the nozzle is almost suicide in this case. Personnel need to use extra caution and consider other tactics, such as cutting a hole in the floor and dropping down a fog nozzle or distributor. If a distributor nozzle is on a rig, and a basement fire is known, consider bringing it with you.

Additionally, if fire is known to be in a basement with lightweight construction, consider laying a roof ladder on the floor to be used as a life boat if the floor collapses.

Risk Assessment – Basement

A detailed risk/benefit analysis should have been performed in the basement. The structural instability of the floor/ceiling assembly under the kitchen was an unsafe environment. Overhaul should have been limited and crews should have avoided the area.

Incident Priorities – Exposures

With AT729 out of service and one other company assisting that officer, the traditional rapid assignment of assigning someone to the exposures was delayed. With fire in the basement of the building of origin, and known construction features (poured concrete foundation) it was less of a priority. If the fire had been on the first or second floor – lateral extension would have been more likely. Command assigned the task force to check for lateral extension. Some heat and smoke damage present on both sides – but no fire.

Exposures still had high CO reading later in the incident – command advised to ventilate. The tactics used to ventilate involved using a gas-power PPV fan which only added to the CO levels.

On later apparatus inspection, it is believed that the new units were stocked without exhaust extensions. If exhaust extensions are not installed to safely vent the CO, electric fans must be used.

Accountability

There were some accountability issues. Command assigned companies to the "Basement Division" that had not made it to the basement at the time of assignment. Their location was known (1st floor) but command was focusing on their objective (to control the fire in the basement) and not their physical location.

Additionally, E735 was also not physically in the basement but was also assigned to the Basement Division. They were part of the initial attack for that objective and coordination was essential. Command missed them on a PAR.

T703 was on the second alarm, but the unit was not listed on an updated Tactical Worksheet (TWS) by the Resource Status Recorder/Deputy IC (DC700B). It was listed on a previous TWS, however. The ICP called ECC to ask who the second truck was on the second alarm. Somehow, they became confused and said the incident didn't get one. This caused the IC to request and additional truck company. The discrepancy was later noted and the additional truck was released.

E708 arrived with three personnel instead of four. The unit previously ran an ALS incident and the medic was deployed on the EMS unit. The PAS tag remained on the collector ring and the current battalion roster listed four personnel.

It is important to notify command of the shortage of normal unit staffing. If a significant event would have occurred, we would have been looking for a person that was not on the scene. The medic arrived later in the incident to re-join his crew.

Incident Duration Reminder (IDR) – The first IDR was not transmitted by ECC until 34 minutes into the incident. The requirement is 20 minutes. As mentioned earlier, it is imperative that someone at the command post be assigned to watch the clock.

Rapid Intervention

E731 (5th Engine) was initially assigned the two out. It was unclear where two EMS units were at the time of initial attack or what there assignment was. The

first arriving command did not assign an initial two-out. This was realized when initial company's deployed and the IC did not see anyone in the front yard.

E753 was the 4th engine but it is unclear if they realized it. The pre-alert had them 3rd, the MDC had them 3rd but after E729 bid on the call, they were moved back to 4th. They did not assemble for several minutes after the first arriving unit. E753's officer was made the RIG supervisor.

Interviewing some units assigned the RIG, it was determined that additional ladders were thrown and plans were made in case there was a need for a rescue. It did not appear, however, that units monitored all talk groups assigned to the incident including the FDTA per policy.

Personnel must be aware of their assignment on the incident. If it is not clear the question must be asked. ECC needs to do a better job and list all changes in a response order if necessary. In this case, they only advised the first three engines.

Personnel must review procedures for RIG functions. It is important to monitor all talk groups assigned to the event and the FDTA (Oscar).

Hose Line Management

It appeared that all hose lines went through the front door. At one time I counted four. This becomes a tripping hazard and also makes the lines hard to maneuver. As a rule of thumb, only two lines should go through any one opening. Seek alternate means to deploy additional lines, such as windows.

Utility Control

Utility control did not get completed by the Rescue Squad after the search. This was not noticed or verified until later in the incident. Company 35 had secured the gas in the rear but the power had to be addressed by others. Command needs to be notified ASAP if SOP tasks can not be completed.

Late Injury

A firefighter off of E729 sustained minor burns that were not noted until later. The firefighter was seen at the GEC and sent home. Past practice (best practice) has been to take the firefighter to the burn center regardless of the severity of the burn. The burn center assures proper follow up and gathers statistics on firefighter burns.

Additionally, Directive 03-11 reinforces this practice, however it is unknown if this Directive is still active. Staff is currently following up on this Directive. There is a side bar letter in the Collective Bargaining Agreement that addresses the need to transport to the Burn Center. This is being reinforced by the Safety Office.

It was also learned that the firefighter was borrowing someone else's gear that morning. One set was already being cleaned, and the other set was still wet from a call the previous shift. The garment did not make a difference – it is just being noted.

Illustrations and Graphics

Figure 1

Photo showing only window to basement and sagging floor/ceiling assembly

Figure 2

**Photo looking down stairs from 1st floor to basement.
Officer off of AT729 injured on the landing**

Figure 3 – Considerable fuel loading in basement

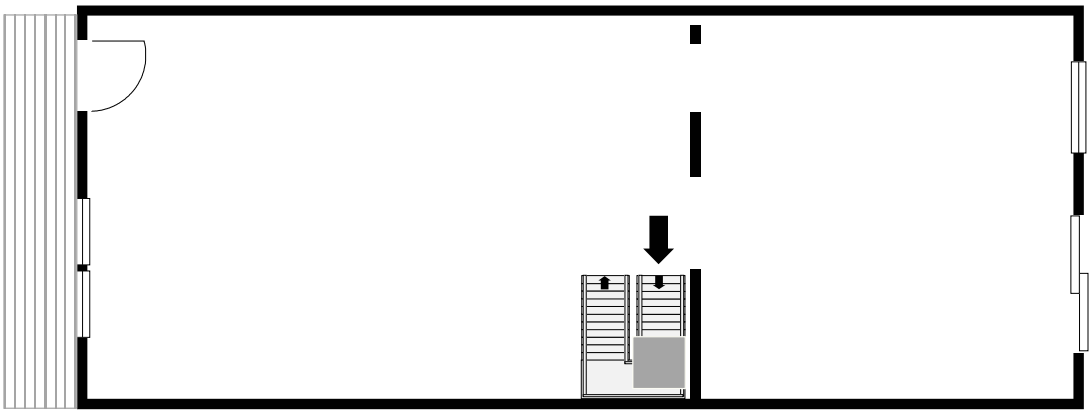
Figure 4

Side Alpha after Knock Down
(Photo courtesy of ldvfd.org)

Figure 5

Only access to single basement window. Note proximity of gas meter, security bar and other obstructions.

First Floor – Not to Scale



Initial Command Structure