

Montgomery County Fire & Rescue Service

POST INCIDENT ANALYSIS

9863 Brookridge Court
Gaithersburg, MD
F10-0037499

April 5th 2010



Submitted by
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**9863 Brookridge Court
Post Incident Analysis**

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INCIDENT OVERVIEW

On April 5th 2010 at 16:16 hours MCFRS battalion 5 and 3 units were dispatched for a reported kitchen fire at 9863 Brookridge Court in Gaithersburg. The weather at the time was unusually warm for early April with air temperatures of 82 F roughly 40% humidity and winds from the west/southwest at 10 miles per hour and clear skies.

During the initial response additional 9-1-1 callers advised of visible flames and black smoke from the house as well as windows melting. The additional reports were added to the event remarks in CAD and provided to responding units' MDC's. Based upon the additional reports ECC dispatched the rapid intervention assignment prior to E708 arriving on scene. Based upon the a report from police on scene, monitored by the Special Operations chief, of "**Flames coming out first and second floor, Everyone is out of the house, trying to get the neighbors out now**" a task force was requested.

Units from Station 8 arrived on scene and discovered a three story, end unit, piggy-back style townhouse with dense black smoke from the windows on all three floors from sides alpha and bravo. Crews initially began an exterior attack and then transitioned into an offensive attack on the fire unit.

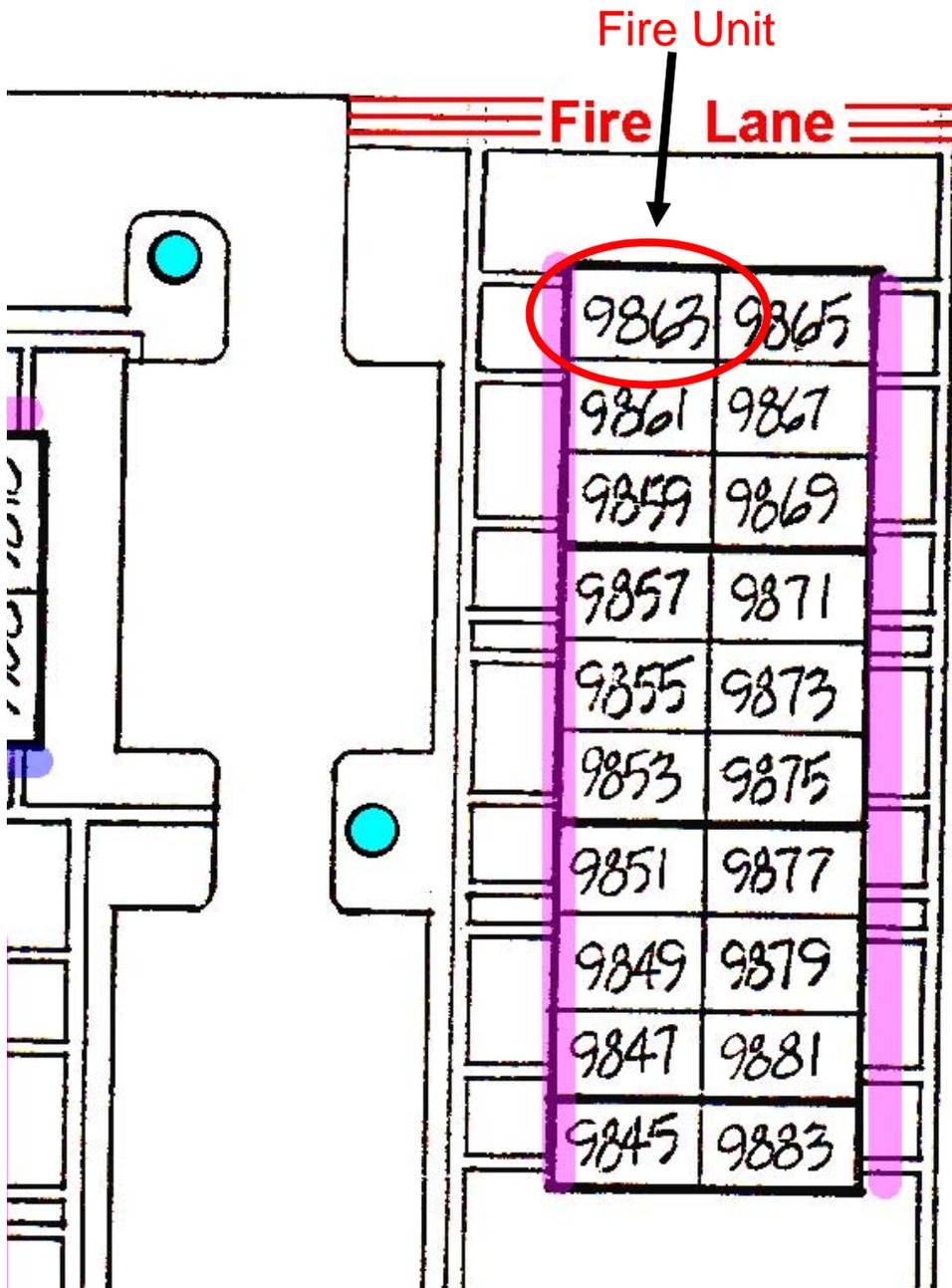
Crews/units were hampered by an out-of-service hydrant as well as some units being delayed in their response. As a result, several units were directed by command to alter their SOP assignments in order to accomplish critical tasks.

During the event, two firefighters suffered heat related injuries/illness and were transported to the hospital. Both personnel were discharged from the emergency room later the same night with "lost time" injuries.

The fire scene was examined by the Fire and Explosive Investigations section. At the writing of this report the cause of the fire is still undetermined. The fire damage was limited to the original unit, 9863, with damage to 3 adjoining units from the efforts to check for extension.

STRUCTURE/SITE LAYOUT

The townhouses in the McKendrie I development of Montgomery Village were constructed in 1977 and area of piggy-back design. The fire unit, 9863, was the end unit toward side bravo when looking from the street. The row of townhouse consisted of 10 units on side alpha and 10 on side Charlie.



The fire unit is of lightweight wood, type 5, construction on a concrete slab with three stories above grade. The unit is roughly 19 feet in width across side alpha and 25 feet in depth. The total floor space for this unit is roughly 1,200 square feet. Each level is connected via a staircase that abuts the exposure delta party-wall with 9861 Brookridge Court.

The townhouses are constructed with shared block walls between units. This greatly limited fire spread.

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The townhouses have no fixed fire suppression systems.

It is unknown whether the unit had functioning smoke detectors as there were no occupants at home when the fire started.

The fire unit/townhouse block is located in a rectangle-shaped development with parking on side alpha. Side Charlie of the townhouse block abuts a small common area and then the rear of townhouses from Maple Leaf Drive



DISPATCH SUMMARY

911 call received at: 16:14

Call enters pending: 16:15:02

Box alarm dispatched: 16:16:13

Engines	Aerials	Rescue Squad	EMS	Command
E708	AT708	RS729	M708	Battalion 705
E729	AT729			Battalion 703
E753				Gaithersburg D/O
E728				Germantown D/O
E717				

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Additional Units that responded

SP700 C717 C708 K717 SA700
EMS703 U131 DC700

Rapid Intervention Dispatch: 16:19:48

Aerials AT735 **Rescue Squad** RS717
EMS M780B

1st Unit On-Scene (E708) 16:23:02

Task Force Dispatched 16:23:12

Engines E722 E735 **Aerials** T731

Additional Units Dispatched 16:49:55

Engines E731 E713

COMMUNICATIONS

While first alarm units were still responded MDC update messages were provided that suggested a working fire:

Time	MDC Message
16:16:22	Caller states no one is inside /// Corner black smoke is coming out
16:17:07	Caller reports lots of flames and smoke /// house is unoccupied but there are kids going near it
16:18:57	Caller states windows and house is melting



Based upon these reports, ECC dispatched the rapid intervention dispatch units at 16:19:48 (prior to the arrival of fire/rescue units). The units from FS8 only observed a visible column of smoke during the last leg of the response, roughly when units

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were on Apple Ridge Road just off of Montgomery Village Avenue. Many other responding units reported seeing a very large column of black smoke during response.

Time	MDC Message
16:22:29	4R14 (<i>police patrol</i>) flames coming out first and 2 nd floor, everyone is out of the house, trying to get the neighbors out now

Time	Action
16:22:50	Special Operations Chief requests task force
16:23:44	Engine 708 on scene report

Upon arrival on scene units operated effectively on 7-Charlie. The task force and additional manpower units were placed on 7-Delta until directed to a tactical assignment. The command team utilized the Battalion 705 buggy as the incident command post, thus utilizing the multiple radio configurations to support operations.

PRE-EMERGENCY PLANNING

The station 8 townhouse/complex map for Brookridge Court was last updated in January 2007. Map # 08-039-095 provided a good overview of the layout of the complex/court.

Some of the responders on this event also responded on a large fire in exposure Charlie roughly 4 years ago. Their knowledge of the complex and the adjoining streets assisted in the selection of apparatus placement for alternate water supply.

ON SCENE OPERATIONS

Water Supply

During the response E708 advised that they would be taking their own hydrant at 9870, which was across the street from 9863. Upon arrival E708 positioned to hook up to this hydrant and when the driver exited the vehicle then observed the hydrant marked with an "OUT OF SERVICE" ring.



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This situation was rapidly relayed to the Incident Commander and the I/C instructed E729 (2nd due) to find a hydrant and to lay a line into E708. At the same time, a ride-along/observer on E708 was instructed by the engine driver to start hand-jacking a 4" supply line back toward 9851.

The I/C observed this function and assumed that the observer/ride-along was going to wrap the hydrant at 9851. E729 was then advised to pickup E708's hydrant at 9851.

Prior to the bad hydrant situation, E753 had called out 3rd due water supply instructions that they were going to lay out from 9851, which E728 acknowledged. As this hydrant was now E708's primary hydrant, E753 revised their layout to be from 9814.

E753 arrived and began laying a 5" supply line in from the hydrant at 9814, at which time the observer/ride-along from E708 was continuing to pull the supply from E708 further down the street, and actually passed E753. At this point, six minutes had transpired since E708 had begun an attack on the fire with tank water, so Command instructed E753 to make charging E708's supply a priority.

To accomplish this, E753 supplied their 1,000 gallons of tank water to E708 by connecting E708's supply to E753. This provided E708 with another tank full of water to continue the attack. After E708's supply line was charged by E753, E753's supply line was charged, but the section connected to E753 developed a severe leak and this had to be replaced, causing the water supply to temporarily be discontinued.

Because E753 had effectively become a relay engine supporting E708, E728 now assumed the side Charlie responsibilities of the third due engine. E728 laid out from the same hydrant as E753 (at 9814). E728's supply line was never charged from the hydrant because E753's 5" supply line was connected directly to the hydrant steamer connection and no unit could expand the water supply once the hydrant was charged.

E728 Supply Line & Humat

E728's supply line was never charged. E728 accessed the fire lane on side delta of 9845/9883 and made access to side Charlie.

As the water supply situation was unfolding, E717 as 5th due and with knowledge of the neighborhood configuration asked command if they should lay a line from Maple Leaf Drive and access side

E753 Supply Line



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Charlie. Command acknowledged this request and E717 initiated water supply for Side Charlie.

Initial Actions

Upon arrival E708 was faced with a three-story, end of the row, piggyback style townhouse with heavy black smoke pushing out from all three levels. E708 positioned on side Alpha just past the fire unit while AT708 positioned on side Alpha with the turntable in front of exposure Delta, 9861. Battalion 705 (BC705) as well as the Special Operations Chief (SP700) followed the units from FS8. SP700 established command while BC705 performed a 360 degree assessment of the complex.



E708 lead off with a 1 ¾" hand line and advised command they were initiating a defensive attack. This message was acknowledged by command and relayed to all units on the fireground. Concurrent with the initial attack, command was informed that all occupants were out of the house. This too was relayed to all units.

Command established the side Alpha division with E708 and AT708 under the supervision of Chief 705C.

At this time RS729 arrived and command recognized the possibility of lateral fire spread and life safety of the exposure Delta townhouse, 9861. RS729 was assigned as Exposure Delta and told to advise the conditions there. As unit began to arrive, Chief 717 was assigned as the Exposure Delta supervisor along with other units.

Once E708's water supply was expanded, side Alpha division advised that they were beginning an interior attack via the front door on side Alpha. At that time the side Alpha division was renamed Fire Attack. The Fire Attack group had E708, E753, AT708, AT729 and C705C. The crews encountered a large volume of fire on the first and second floors with high heat conditions. The third floor had no

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visible fire conditions but there was significant heat buildup and very limited visibility.

As crews continued to operate in the fire unit, replacement crews and additional crews were requested. Due to the lack of adequate reserves on scene, division/groups/personnel had to wait extended periods of time for relief crews to arrive and be deployed.

Rapid Intervention Company/Group

At about this time E729 reported to the command post and advised they were short 1 member of their crew and that they had only two personnel. Command assigned them to begin expanding on the two-out that was initially assigned to M708 and to become the Rapid Intervention Company.

After assisting with the water supply situation for E708 on side Alpha and stretching a leader line to side Charlie (where E717 had already been deployed), E728 took their assigned duties as the Rapid Intervention Company and began building the Rapid Intervention Group with RS717, AT735, and M708B near the Alpha/Bravo corner of the townhouse row.

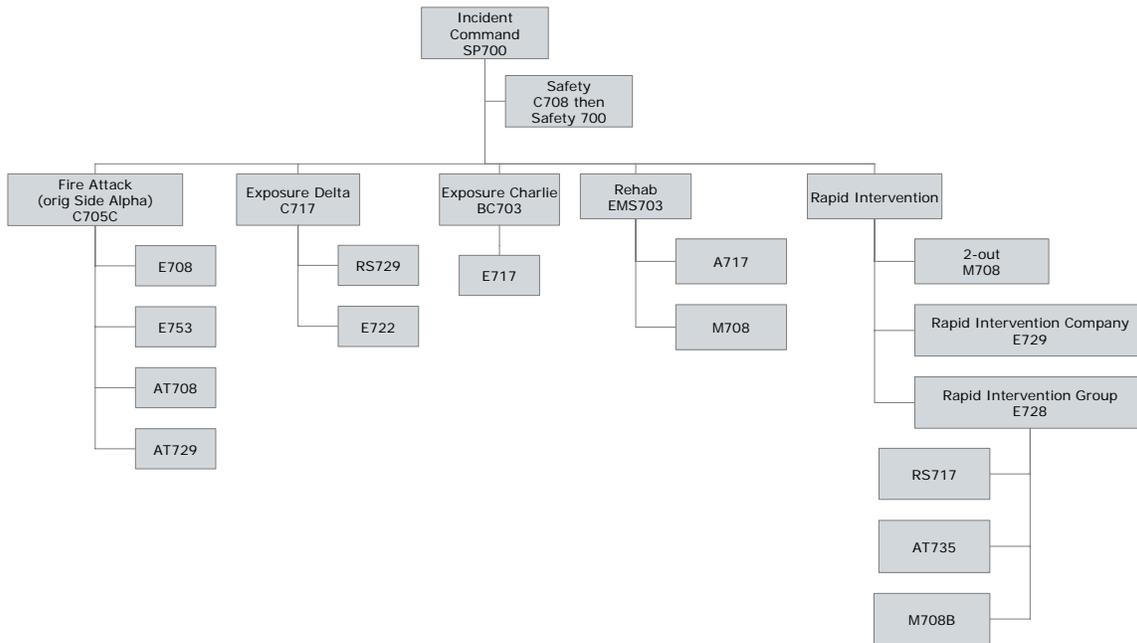
Injured Fire Fighter

While operating inside the fire unit on the second floor, E708's nozzle firefighter advised the officer that they needed to exit the building. The officer advised them to do so. At that time there was active fire on the 2nd floor and initially there was no one for E708's officer to pass the nozzle to. After three or four minutes, E708's officer was able to pass the nozzle to another crew and he exited the building to track down the injured member of his crew. E708's officer found the firefighter on side Bravo of the townhouse being attending to by M708B's crew.

Extension / Overhaul

Due to the extended length of fire growth and development in the townhouse, a significant amount of fire entered the ceiling/floor void spaces as well as the attic. This created a very labor-intensive effort to open all void spaces to check for fire extension. The Safety Officer advised that all the ceiling drywall needed to be pulled to find all hidden fire. This function had to be completed before forced mechanical ventilation could be started.

INCIDENT MANAGEMENT STRUCTURE



STAGING

The task force was requested prior to the arrival of units. Upon dispatch ECC instructed the task force units to operate on 7-Delta. Due to the need for additional manpower in the fire unit, the task force units were instructed to report to the command post on side Alpha. Immediately upon arrival this units were placed in tactical assignments.

In an attempt to ensure adequate manpower on scene, two additional units were dispatched at 16:49:55. E731 and E713 responded from quarters and were advised to report directly to the command post for assignment and to not stage.

Additionally, a request was made for two additional transport units; one ALS and one BLS, to provide backfill due to the transport of the two injured firefighters. These units, M729 and A717, were instructed to stage and coordination was attempted to allow for patient hand off.

SUPPORT FUNCTIONS

As part of the rapid intervention dispatch, Canteen 708 and Air 733 were alerted. Both units arrived on scene and positioned as best possible due to the complex configuration and hose lines and other obstructions. Canteen 708 provided rehab supplies to the rehab area that had been set up on side Bravo of the fire unit on the grass.

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Due to the damage of the fire unit and exposure Delta, the American Red Cross (ARC) was requested and arrived on scene. The ARC provided assistance to two families with a total of seven people.

Montgomery County Sixth District and Gaithersburg City police assisted with crowd and traffic control as well as initial occupant interviews prior to the arrival of the fire investigators.

SAFETY GROUP

Early into the event, Chief 708 was assigned as the Incident Scene Safety Officer (ISSO). Upon the arrival of Safety 700 the assignment of the ISSO was transferred to Safety 700. As mentioned earlier, interior fire conditions and extension had to be contained before forced mechanical ventilation could begin or the Immediately Dangerous to Life and Health (IDLH) conditions could be cleared. This required all personnel operating in the fire building to remain "on air" longer than normal.

ACCOUNTABILITY

During the event command maintained accountability by division and groups while utilizing a tactical worksheet. While active suppression activities were occurring, two Personnel Accountability Reports were completed via radio and face-to-face communications. The accountability reports were completed at 25 and 45 minute duration marks.

INVESTIGATIONS

The Fire and Explosive Investigations section assisted on scene with origin and cause determination. FM62 was the lead investigator with assistance from FM58. The FM's determined that no residents/occupants were at home for several hours before the discovery of the fire. A witness advised they saw the fire in the first floor kitchen area of 9863 before calling 9-1-1.

Due to the extensive damage to the first floor kitchen area, the FM's could not determine the specific area of origin. The residents/occupants reported having several electrical problems in the kitchen wiring. The fire was classified as undetermined cause originating in the kitchen area. The FM's estimated damage as \$ 150,000.00 to the structure and \$ 75,000.00 to the contents.

LESSONS LEARNED

Water Supply

As the out of service hydrant was discovered and “plan B” for water supply had to be implemented, all personnel took the steps necessary to ensure E708 had a water supply. This task required multiple personnel and units but the water supply of the first due/attack engine must take precedence over all other tasks.



During the process of hand jacking the 4” supply from E708, the observer/ride-along bypassed the hydrant at 9851. This hydrant was the next closest water sources to the fire unit. This was done because the status of this hydrant was unknown and members of the first arriving units did not realize it was there. This hydrant was not utilized during the event until the overhaul stage.

One of the critical functions of the four-way hydrant valve, also referred to as the Humat Valve, is the ability to establish an uninterrupted water supply without requiring an engine at the hydrant initially. When placed at a hydrant, a supply line with a Humat Valve can be connected by any on-scene personnel and water supply can be initiated. Additionally, the water supply engine can connect to the Humat’s 4½” steamer connection and after opening the butterfly valve can utilize additional water from the hydrant.

E753 does not operate with a Humat/4-way valve on their supply line. This required the 5” stortz adapter be connected directly to the hydrant steamer connection. As such, the water supply from the hydrant at 9814 was limited to only the E753/E708 configuration.

Recommendation

All engines operating in Montgomery County should be equipped with a Humat/4-way valve.

Attack Line Selection

The proper selection of attack line size is made based upon observed conditions upon arrival, fire load, and available staffing. During the hotwash it was learned that E708 selected a 1 ¾” pre-connected hand line. At the time of arrival the fire unit presented with heavy black smoke pushing from windows on all three floors and both side Alpha and Bravo and E708 had a 4-person crew. Additionally E708 advised that they were initiating a defensive attack.

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In light of the conditions upon arrival and the mode of fire attack a larger hand line or portable Blitz fire nozzle *should* have been selected. However, as circumstances of this event unfolded including the prolonged water-supply problems, the selection of the 1 ¾" hand line allowed for an uninterrupted fire attack from tank water.

E708's initial attack line operated as foam solution as outlined in Fire Chief's General Order # 10-03. Since the initial fire attack was designated as defensive, E708's attack line should have been pumped as compressed air foam (CAFS).

Recommendation

All engines officers should consider fire state upon arrival when selecting fire attack lines and extinguishing agents.

Resources

Given the fire condition and high air temperature the Incident Commander did not ask for sufficient resources in a timely fashion. Compounding the fire growth and air temperature, additional factors including the location in the northeast edge of Montgomery Village and the time of day (afternoon rush hour) created extended response times. The situation was further compounded when two firefighters were injured, stripping additional personnel. Command initially called for a Task Force prior to arrival based upon CAD messages and the police report. Upon arriving on scene the Incident Commander should have increased the task force to a 2nd alarm.

Recommendation

Over resource then right size – you get one first move.

Incident Command System – Terminology

As the fire attack transitioned from defensive to offensive, the Incident Commander renamed Division Alpha to Fire Attack, to imply to those units that "you have the entire fire building." For the Incident Commander this meant that all operations inside the townhouse were the responsibility of the Fire Attack Group Supervisor. The use of fire attack created some confusion as the division supervisor was required to move between three levels of the townhouse impact effective span of control. This also provides the opportunity for crews to freelance as the division supervisor is not present.

Recommendation

Utilize traditional structure sub-division by creating Division One, Division Two, and Division Three.

Heat Preparations

While the calendar indicated that this was the first week of April, the weather conditions were indicative of mid summer. Each year personnel acclimate to the summer heat and humidity during the early weeks of May and June.

Performing fire ground tasks for 30 to 45 minutes can result in approximately 2% loss of body weight. That same 2% loss of body weight can result in 10 to 15 % reduction in performance.

Recommendation

Fire department personnel should prepare for duty everyday as if it was the middle of summer. This includes constant hydration, not just when thirsty.

Communications

E735 was operating with a Master Fire Fighter (MFF) operating as the unit officer while the captain provided support in a “shadow” role. When E735 arrived they were assigned to the fire unit and then assumed the role of the Fire Attack group supervisor. Once inside the MFF missed several radio calls from units assigned to fire attack as well as command. Tower 735’s officer advised command of E735’s unit officer situation at which time command directed E735’s Captain to assume the unit officer and group supervisor role.

Recommendation

All personnel operating in unit officer and division/group supervisor roles must constantly monitor the radio to ensure situational awareness and unit/division/group coordination.

Response Order

At the time of dispatch E729 and E717 were engaged in training activities or responded from another event. This caused both units response to be delayed. Neither of these delays were communicated on the tactical talk group. While the delay of the 5th due engine, E717, does not play a pivotal role in the event; the delay in the 2nd due engine is critical. Additionally the water supply issues that developed during this event highlighted the critical nature of the delay of E729.

Recommendation

All unit officers should immediately notify ECC and the first due battalion chief if their response will be delayed.

SUMMARY

All personnel that responded to this event were faced with a well developed fire in a three story townhouse on an abnormally hot spring day. The fire development combined with the water supply difficulties created the recipe for problems. All initial crews provided the correct focus to ensure that E708's supply line was charged.

Once the water supply issues were overcome, crews engaged in an aggressive interior attack on the fire unit and check of the exposures. During the attack, two fire fighters were injured/impacted by heat exposure symptoms.

All personnel operated very well at an extremely taxing fire on an extremely hot/humid spring day.

