MONTGOMERY COUNTY FIRE/RESCUE SERVICE

POST INCIDENT ANALYSIS

2-Alarm House Fire with Injuries
4610 Iris Street
Box Area 21-04
September 04, 2014
04:33 Hours
Incident # 14-0101041

Written By: Chief Jayme Heflin

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Incident Overview

Note: This post incident analysis is based upon the review of the incident audio tape, interviews with crews who operated at the emergency scene and the review of completed Record Management System Unit Reports.

On September 4, 2014 at 0433 hours, Montgomery County Fire and Rescue units responded to a report of a house fire across from 4609 Iris Street, Aspen Hill, Maryland. While units were responding, the first due engine cleared a previous medical call and became available for response. The Emergency Communications Center (ECC) placed them on the call and the initial dispatched units were updated to reflect the change. Weather at the time of the incident was dry and clear with a temperature of 64 degrees Fahrenheit. Winds were calm and humidity was 94 percent.

Figure 1 - Alpha/Delta View. Photo Credit: Beverly Jensen

<u>Notable Events, Decisions, and Findings:</u>

- Initial strategy was offensive attack to the reported seat of the fire in the basement.
- Crews were withdrawn for a defensive knockdown due to inability to locate the interior basement steps.
- 1 Civilian Fatality.
    - One occupant located outside of residence reported possible 4 occupants inside of the house.
    - Vent, Enter, Isolate, and Search (VEIS) used to remove victim.
- 2 Injured Firefighters transported for heat exhaustion.
- Fire cause determined to be arson which led to gas-fed fire in basement.
- Delayed alarm leading to structural compromise of the first floor.

- Majority of the first alarm units arrived together leading to confusion during initial operations.

Incident Narrative

Paramedic Engine 721 instructed Paramedic Engine 725 that the first hydrant would be at 4603 Iris Street and that Paramedic Engine 725 should take it if they arrived first. Truck 725 arrived first, informing Emergency Communications Center and units responding of smoke in the area and requesting the Rapid Intervention Dispatch. Truck 725 positioned on the Alpha/Bravo corner of the structure but blocked out Paramedic Engine 725 from accessing the hydrant which was past the address. Paramedic Engine 725 then backed out, went around the block, and picked up the hydrant at 4603 Iris Street. Ambulance 725 attempted to advise Paramedic Engine 725 of the hydrant at 4632 Aspen Hill Road.

Truck 725 gave the Initial On Scene Report of 2 story, single family home with smoke from the second floor, again requested the Rapid Intervention Dispatch, designated Ambulance 725 as the 2-out, and announced he would have command in the attack mode. A Montgomery County Police Officer advised the officer of Truck 725 face-to-face of visible fire in the basement and that the status of occupants was unknown in the structure. Paramedic Engine 725 instructed Paramedic Engine 721 that they would lay-out from 4603 Iris Street and for Paramedic Engine 721 to pick it up.

Paramedic Engine 721 arrived second, pulled up to the Delta/Alpha corner and transmitted that they were on the scene assuming first due. Paramedic Engine 721 hand-jacked their supply line back to the hydrant at 4632 Aspen Hill Road were the third due engine (Paramedic Engine 723) picked up the line.

Chief 705 arrived on the scene, assumed Level 2 Command in the Chief 705 vehicle, established fixed command post at the corner of Iris Street and Magellan Avenue, and confirmed the basement fire. Command then announced the correct running order again.

Truck 725 announced they had an entrance and basement stairs on Side Delta. Command assigned Paramedic Engine 721 and Truck 725 as Basement Division with the officer from Truck 725 as the Division Supervisor. Rescue Squad 703 requested the status of the occupants, was informed of possibly 3 occupants still inside, and was assigned as Rescue Group. Paramedic Engine 703 was assigned as Division 1 and ordered to locate the top of the basement steps and control vertical extension. Command assumed there was an exterior entrance to the basement that Truck 725 and Paramedic Engine 721 were utilizing. Battalion Chief 703 was then ordered to the

Basement Division to assume the Division Supervisor position from Truck 725. Paramedic Engine 725 was assigned to report to the Basement Division as the backup engine.

Truck 725 Driver advised that an occupant from the house was reporting there were possibly three more victims inside the structure. Communication with the occupant was difficult due to his excited state and no additional information on possible occupants was able to be obtained. Rescue Group (Rescue Squad 703) was ordered to immediately complete a primary search. Paramedic Engine 703 transmitted that their hose line had burst and they would be delayed in completing their assignment on Division 1.

Command re-transmitted to all units operating that there were possibly three more victims and requested a Task Force from communications. Basement Division (Truck 725) advised they had not found access to the basement and that they needed to pull out and regroup. EMS701 suggested adding two more medic units for the report of additional victims. The Emergency Communications Center added three additional EMS units to the call prior to Command initiating the request.

First alarm units on floors one and two then experienced a rapid fire growth event. Rescue Squad 703 transmitted a report of fire on the second floor and that they had been pushed out of the structure by the heat. Tower 718 advised Command to evacuate the units from the structure, which was ordered and the evacuation tones sounded. A Personal Accountability Report was then conducted by Command.

During the Personal Accountability Report, Rescue Squad 703 advised they had found a victim inside the Side Alpha, second floor window, and needed assistance removing the victim via the second floor window due to the heat and height of the windows. Courageous efforts were made by members of Rescue Squad 703 with Paramedic Engine 718, and Rescue Squad 742 Bravo supporting the effective rescue and removal of a single occupant trapped in the structure (from the bedroom to a porch roof and then to the ground).

Multiple units transmitted radio traffic during the rescue situation. Command called for radio silence until the rescue was completed. Basement Division (Battalion Chief 703) reported that his division had regrouped and they were ready to re-enter the basement for fire control.

Tower 703 / (the Rapid Intervention Group Supervisor) called for EMS to Side Alpha for a down firefighter after the rescue. Rescue Squad 742 Bravo advised they had a victim on the porch roof and were in need of manpower to remove the victim to Medic 723.

The victim was identified to be unconscious and unresponsive and bleeding from unknown injuries. Personnel from the Rapid Intervention Group located on Side Alpha assisted moving the victim via two ground ladders to the front yard. The victim was transferred to a waiting medical cot for treatment by the crew from Medic 723.

Command then called a Personal Accountability Report for Rescue Squad 703 and received a report that the Rescue Squad 703 Officer (the down firefighter) was with EMS for evaluation. Command requested additional EMS units to backfill and the Emergency Communications Center reported they had already added additional EMS units to the incident. Command then ordered units to complete the primary search and received report of searches completed which were found to be negative.

Command requested a second Task Force following the Basement Division Supervisor (Battalion Chief 703) report of a floor compromise, gas odor, and an uncontrolled gas-fed fire in the basement that was unable to be controlled due to the floor compromise. The partial collapse of the first floor into the basement blocked access to the burning gas meter in the Alpha Quadrant of the basement. Units were attempting to limit the fire spread until the arrival of Washington Gas & Light to secure the gas from the outside of the structure. Safety 700 then reported that the floor and the stairs between Division 1 and Division 2 were compromised and that units would need to use ground ladders to the windows on Division 2 to make access. Safety 700 ordered crews on Division 2 (Tower 718 Officer) to evacuate, causing crews to split, and leading to a removal of the hose line operating on Division 2. Command conferred with Safety 700 and units were advised there was no need to evacuate and to continue with their assignments.

Multiple units contacted Command and reported active fire in the walls. Command rotated additional units to relieve crews and complete overhaul and extinguishment. A third Personal Accountability Report was conducted confirming that all personnel were accounted for. Units were still unable to control the broken gas service. Command ordered units to evacuate the building due to increasing gas concentrations and for Safety 700 to establish explosion/collapse zones.

Washington Gas & Light had difficulty securing the curb-side gas shutoff and ultimately had to dig down with a track hoe to the shutoff to control the gas to the house. Once the gas was secured complete extinguishment and overhaul was conducted through the rotation of crews on scene.

The fire was declared under control and the incident was systematically downsized. Personnel from Fire and Explosives Investigations (FEI) responded to the scene and initiated an Origin and Cause of the fire. The scene was transferred to The Fire and

Explosives Investigations Group. The fire was determined to be arson and investigation is ongoing at time of report.

Building Structure/Site Layout

Figure 2 - Street View. Photo Credit: Beverly Jensen

4609 Iris Street is situated on the corner of Iris Street and Magellan Avenue. The structure is a 2 story split level house with a centrally located stairway built in 1957. The building is Wood Frame Type V construction and is approximately 2130 square feet. There is no entrance to the basement from the exterior. There were no sprinklers present in the structure and no smoke detectors were located.

The house was renovated adding a bump-out for a kitchen on the Charlie side. The renovation resulted in a large attic void space that is not common in this type of construction. Fire extended into the void space requiring additional work to access the space. Firefighter access to the second floor via ladder is difficult due limited overall height of the windows and the windows being approximately 48” off the floor.

The house is separated from the street by a hedge row (Figure 2). There are no other immediate exposure issues to the house. The driveway is located on the Bravo side and accessed from Magellan Avenue. The hydrants used on this incident are located at 4632 Aspen Hill Road and 4603 Iris St.

Fire Code History

A review of the past and current fire code requirements for the structure revealed no recent code compliance history for this single family residence. The structure is a non-sprinklered building with no operational smoke detectors located on any level. No smoke detectors where heard by first arriving units.

Communications

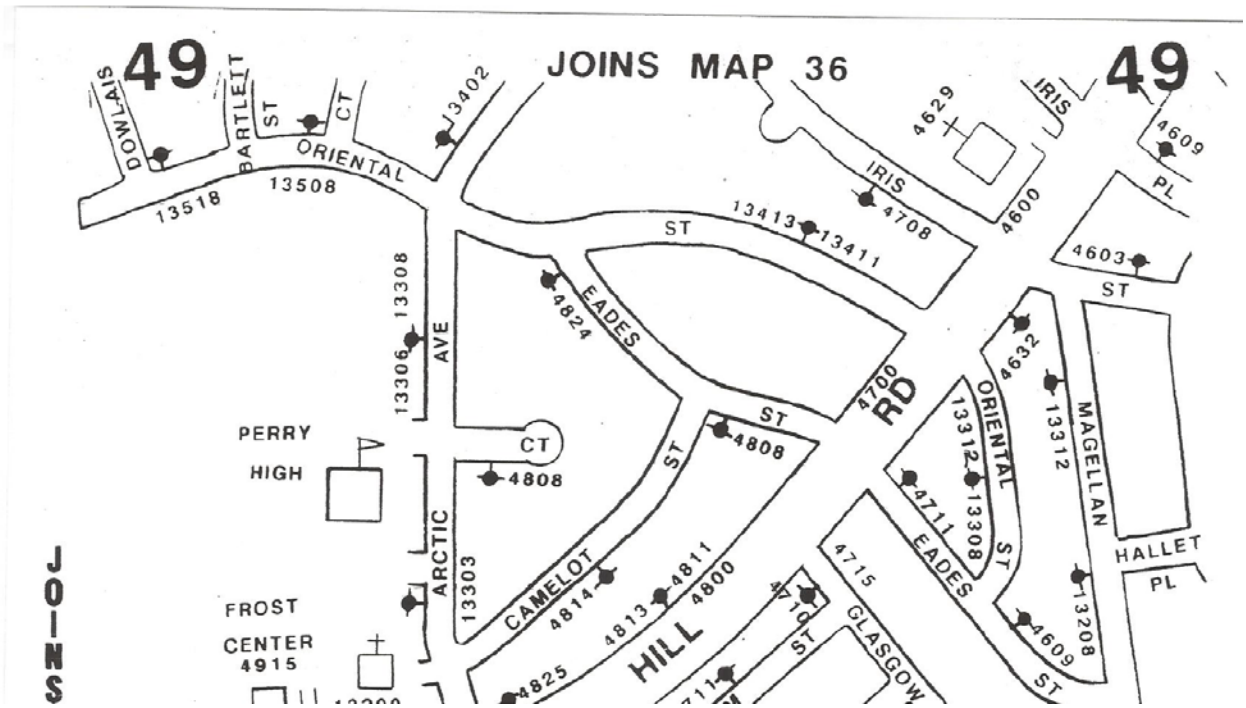
Emergency Communications Center sounded the pre-alert at 04:33:59 and dispatched the first alarm immediately after.

Paramedic Engine 721 advised Emergency Communications Center that they were clear of a medical local, available for the box, and would be taking First Due. Emergency Communications Center dropped Engine 705-Bravo from the run and added Paramedic Engine 721 (without consulting the first due Battalion Chief). The Emergency Communication center then announced the revised running order.

The incident was assigned to the 7-Charlie talk group with the Task Force and Second Alarm units assigned to 7-Delta. The radio reception was good and the Vehicle Repeater System (VRS) was not engaged or needed. The rapid escalation of the incident required all units on the Task Force and Second Alarm to switch to 7-Charlie for stream lined communications.

Pre-emergency Planning

There is no pre-fire plan for the structure other than the current street map prepared by Fire Station 25's personnel. The running route and street map were sufficient for finding the general location, however, the map was not to scale. This made gauging the distance from Aspen Hill Road to the house difficult. Kensington Street Map 49, originally created in the 1980's, shows the two closest hydrants as 4632 Aspen Hill road and 4603 Iris Street just before Magellan Avenue on the opposite side of the street. The map was available in all responding fire apparatus. The map was not accessed or required for use by Incident Commander.



Staging

No staging location was designated. Units were ordered to report to the Command Post for assignment upon arrival.

Support Functions

The Rehabilitation Group was initiated early into the incident on the Alpha Side near the command post. EMS/Chief 703 Golf coordinated with EMS701 to ensure all personnel rotated and cleared Rehab. Air 733 and Canteen 740 worked in unison with the Rehabilitation Group to ensure personnel were hydrated and Self Contained Breathing

Apparatus (SCBA) Cylinders were available for service. Two firefighters including the original “firefighter down” were treated by the Rehabilitation Group and transported to local emergency rooms for further evaluation.

Function with outside agencies were properly coordinated (i.e. Montgomery County Police, Public Information Officer, Power, and Gas Company). Power service was secured for the entire building by Potomac Electric Power Company.

Washington Gas & Light was called to the scene, staged their vehicles on Aspen Hill Road between Iris Street and Oriental Street, and reported to the Command Post. Washington Gas & Light had difficulty locating the curb-side gas shutoff and ultimately had to dig down to the shutoff to control the gas to the house.

Safety Considerations

- 2-out was established.
- Rapid Intervention Crew was assembled on Side Alpha.
- Safety 700 assumed Safety Officer Role and identified/mitigated situations.
- A Safety Zone was established due to gas concentrations but was not clearly communicated to units operating.

Accountability

Crews were accounted for utilizing the Incident Tactical Worksheet and the Daily Line-up form carried in the Battalion 704 vehicle. Positioning of fire apparatus prior to the arrival of Battalion 704 prevented a clear view of the scene. Command was maintained in Chief 705’s vehicle due to the clear view of the incident. Additionally, crews were accounted for utilizing the required Personal Accountability Report (PAR) based on the required Incident Duration Reminders (IDR) timeline. There were no issues related to accountability on the incident. All personnel provided timely reports.

- Multiple Personal Accountability Reports were conducted throughout the incident including after evacuations.
- Units responded to the Personal Accountability Reports rapidly and effectively.
- Command team was built out with Battalion Chief 704 joining Chief 705.

Resources

Initial 1st Alarm

Paramedic Engine 725	Truck 725	Ambulance 725
Paramedic Engine 723	Aerial Tower 723	Battalion Chief 704
Paramedic Engine 703	Rescue Squad 703	Battalion Chief 703
Paramedic Engine 718		Kensington Duty Chief
Engine 705 Bravo		Rockville Duty Chief

Revised 1st Alarm

Paramedic Engine 721	Truck 725	Ambulance 725
Paramedic Engine 725	Aerial Tower 723	Battalion Chief 704
Paramedic Engine 723	Rescue Squad 703	Battalion Chief 703
Paramedic Engine 703		Chief 705
Paramedic Engine 718		

RID

	Aerial Tower 703	M723
	Rescue Squad 742 Bravo	

Task Force

Engine 705 Bravo	Aerial Tower 718
Engine 740	

2nd Alarm

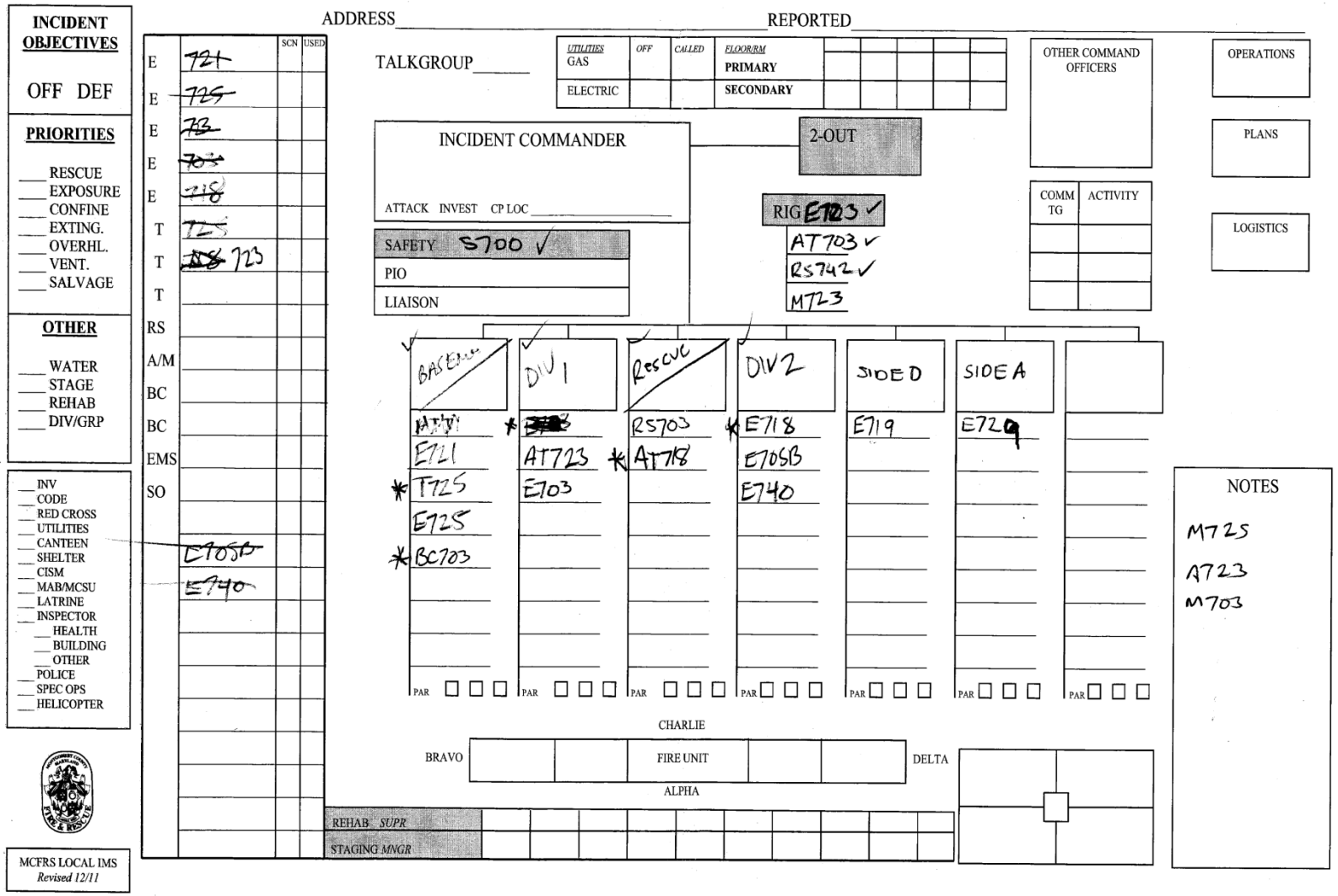
Paramedic Engine 719	Aerial Tower 724	Medic 742 Bravo
Paramedic Engine 729		Ambulance 703
		Ambulance 742 Echo

Special Call

		Medic 725
		Medic 703
		Ambulance 723

Other

Operations Chief 700	Emergency Medical Services 701
Duty Chief 700	Fire Explosives Investigations 700
Volunteer Chief 700	Fire Explosives Investigations 752
Chief 703 Golf	Fire Explosives Investigations 755
Safety 700	Fire Explosives Investigations 757
Air 733	Fire Explosives Investigations 758
Canteen 740	Fire Explosives Investigations 762
	Fire Explosives Investigations 767



INCIDENT OBJECTIVES

OFF DEF

PRIORITIES

___ RESCUE
___ EXPOSURE
___ CONFINE
___ EXTING.
___ OVERHL.
___ VENT.
___ SALVAGE

OTHER

___ WATER
___ STAGE
___ REHAB
___ DIV/GRP

___ INV
___ CODE
___ RED CROSS
___ UTILITIES
___ CANTEEN
___ SHELTER
___ CISM
___ MAB/MCSU
___ LATRINE
___ INSPECTOR
___ HEALTH
___ BUILDING
___ OTHER
___ POLICE
___ SPEC OPS
___ HELICOPTER

MCFRS LOCAL IMS
Revised 12/11

ADDRESS _____ REPORTED _____

TALKGROUP _____

		SCN	USED
E	~~721~~		
E	~~725~~		
E	~~73~~		
E	~~703~~		
E	~~718~~		
T	~~725~~		
T	~~BS~~ 723		
T			
RS			
A/M			
BC			
BC			
EMS			
SO			
	E705B		
	E740		

UTILITIES	OFF	CALLED	FLOOR/RM					
GAS			PRIMARY					
ELECTRIC			SECONDARY					

INCIDENT COMMANDER

ATTACK INVEST CP LOC _____

2-OUT

RIG ~~E723~~ ✓
AT703 ✓
RS742 ✓
M723

SAFETY S700 ✓
PIO
LIAISON

OTHER COMMAND OFFICERS

OPERATIONS

PLANS

LOGISTICS

COMM TG	ACTIVITY

BASE ✓	DIV 1 ✓	RESCUE ✓	DIV 2 ✓	SIDE D	SIDE A	
[illegible]	* ~~[illegible]~~	RS703	* E718	E719	E729	
E721	AT723	* AT718	E705B			
* T725	E703		E740			
E725						
* BC703						
PAR ☐☐☐	PAR ☐☐☐	PAR ☐☐☐	PAR ☐☐☐	PAR ☐☐☐	PAR ☐☐☐	PAR ☐☐☐

CHARLIE

BRAVO | | FIRE UNIT | | DELTA

ALPHA

REHAB *SUPR*

STAGING *MNGR*

NOTES

M725
A723
M703

Investigations

- Fire origin determined to be Arson.
- Delayed alarm from occupants led to advanced fire spread/growth.
- Gas-fed fire in basement also contributed to advanced fire spread/growth.

Lessons Learned

- Failure of units to complete water supply as called out hampered the ability of initial companies to initiate the fire attack. Units must be clear about water supply and either follow through or announce changes with enough time for responding units to react.

- Ground ladders were late in going up due to the truck driver setting up the aerial for potential use on the house. It is a critical priority on a house fire that ground ladders are placed to areas of likely egress and rescue. Throwing ground ladders to small windows less likely for egress or rescue should be delayed. The Rapid Intervention Group should be proactive and assist in throwing ladders to prepare the building for exit by operating personnel in the event of an emergency while still maintaining readiness for immediate reaction in case of a Mayday..

- Truck drivers must be operating in proper personal protective equipment on the fire ground.

- Excessive crews in building made it difficult for lines to advance and searches to be completed:
    - Excessive number of personnel on compromised floor above a basement fire without recognizing the danger.
    - Personnel should not be operating above an un-checked fire.
    - Consider committing fewer units to interior of smaller buildings.
    - Crews must not block doorways or stairs.

- The natural gas supply to the house involved was unable to be controlled by fire personnel on scene and was involved in fire. Following the inadvertent extinguishment of the flame an uncontrolled gas leak occurred in the structure.
    - Personnel must ensure that they do not accidently extinguish a gas fed fire while protecting for extension.

- Command must establish safety zones as soon as a hazard is recognized, communicate the information, and ensure compliance by personnel operating on scene.

- Rehabilitation area and air units should be setup as close to the scene as reasonably possible.

- The Montgomery County Geographic information system (GIS) has created maps for each of the fire stations response areas. Consideration should be given to updating running routes and maps in all apparatus to use the more updated and more detailed maps.

- Many units transmitted non-critical information to Command during Personal Accountability Reports, rescues, and other critical situations. This action prolonged the time to complete an accurate Personal Accountability Report and maintain accountability of all units. Personnel must exercise radio discipline at all times and work to decrease excessive radio traffic.

- Personnel transmitted messages in loud and excited voices making it difficult for Command to understand transmissions. Personnel must exercise discipline and transmit messages in a clear and calm voice.

- Lack of a thermal imaging camera hampered initial operating companies in searching for the seat of the fire and possible victims. Unit officers must bring thermal imaging cameras with them from the apparatus.

- Command attempted twice to give an operational assignment to a unit that was already assigned to the Rapid Intervention Group. Command Team must maintain good awareness of units and their assignments through use of the command chart.

- The fire occurred in the early morning hours and continued into shift relief. Multiple units and personnel were switched out with limited control by Command. Concentrated management of the shift transfer must be practiced by Command at incidents during these critical periods. Off-duty personnel must report to Command Post for specific assignment to maintain accountability.

- Due to the time of fire and shift transfer a Hot Wash of the event was not conducted with the initial assigned box alarm personnel. This must be completed before personnel are allowed to clear the scene for information gathering and to

address any Critical Incident Stress items that may have been experienced on the incident.

- Multiple units were reserve apparatus. Command had difficult in establishing the identity of the reserve apparatus. Reserve apparatus should be marked in a fashion that their temporary unit number may be easily recognized.

- Multiple personnel were noted removing the regulator from the Self-Contained Breathing Apparatus to make clear radio transmissions. This is a dangerous practice that subjects the user to hazardous atmospheres. One unit was able to "smell" the natural gas while operating in the hot zone with Self-Contained Breathing Apparatus. Personnel must practice radio transmissions while wearing full Personal Protective Equipment and Self-Contained Breathing Apparatus.

- Several pieces of information directly related to the initial fire attack and building construction were noted by firefighters on scene. This information was either not effectively communicated by the firefighter or adequately considered by the unit officer. Crew Resource Management practices must be reviewed and practiced by all MCFRS personnel.

- Several instances of miscommunication between the Incident Scene Safety Officer and Command occurred. The miscommunication has the potential for personnel to disregard the authority of the Incident Scene Safety Officer. Pre-incident familiarization of people filling critical command staff functions is critical to successful operations on an emergency scene.

- The Rapid Intervention Group provided some critical assistance in fire control during the initial evacuation. The Group also provided critical assistance in the rescue and removal of the fire victim and the injured fire officer. Command was unaware of the depth of commitment of the Rapid Intervention Group. All actions by assigned groups and units on the scene must be transmitted to command for proper accountability.

- A unit operating inside the structure on the initial fire attack recommended that command consider evacuating the structure to regroup. The officer felt the incident was not under control and units should evacuate but did not clearly and strongly state the order to evacuate. Training must occur that empowers officers to immediately order an evacuation if their training and experience tells them it is necessary.

- A 360 degree survey of the scene must be made by the first due officer on incidents. A complete survey must be completed by all officers when practical to adequately complete an action plan and identify critical factors affecting the emergency scene.

- The fire in this structure was located in the basement. There was access to the basement from exterior windows that could have been utilized for initial cooling of the atmosphere prior to entry into the structure by fire and rescue personnel. Full consideration of current fire attack tactical decision making processes must be given prior to initiation of fire attack on structures. The fire must be located, the fire flow path identified and controlled, the fire cooled from a safe location, followed by extinguishment. All while rescue considerations and actions are simultaneously being employed.

Overall Analysis of Incident

This incident contained many shortcomings and problems that require on-going work. While there were many positives (Rescue and removal of a trapped victim, safe evacuation prior to failure of living room floor, and rehabilitation), the problems that were exposed were significant and must be improved upon. These problems are enumerated below:

Discipline: Some units out-bid each other causing a change in the initial assignments. The changes lead to some confusion by Command and initial responding units. The answer to this is basic: Respond as dispatched. Take your assigned position and correctly cover your assigned duties and tasks.

Command and Control: For a period of time Command struggled to get their arms around the exact location of events that were occurring on the fire ground. A primary cause of this was the lack of a clear “picture” of the layout of the building.

Application of Tactics: Full consideration of current fire attack tactical decision making processes must be given prior to initiation of fire attack on structures, especially before committing personnel inside the structure. The fire must be located, the fire flow path identified and controlled, the fire cooled from a safe location, followed by extinguishment. All while rescue considerations and actions are simultaneously being employed. Finally, support in the Incident Command Post really helps, but in the early moments of an incident one individual (and by MCFRS policy the first arriving command

officer) must set the tone, determine the objectives, set the strategies and direct tactical deployment.